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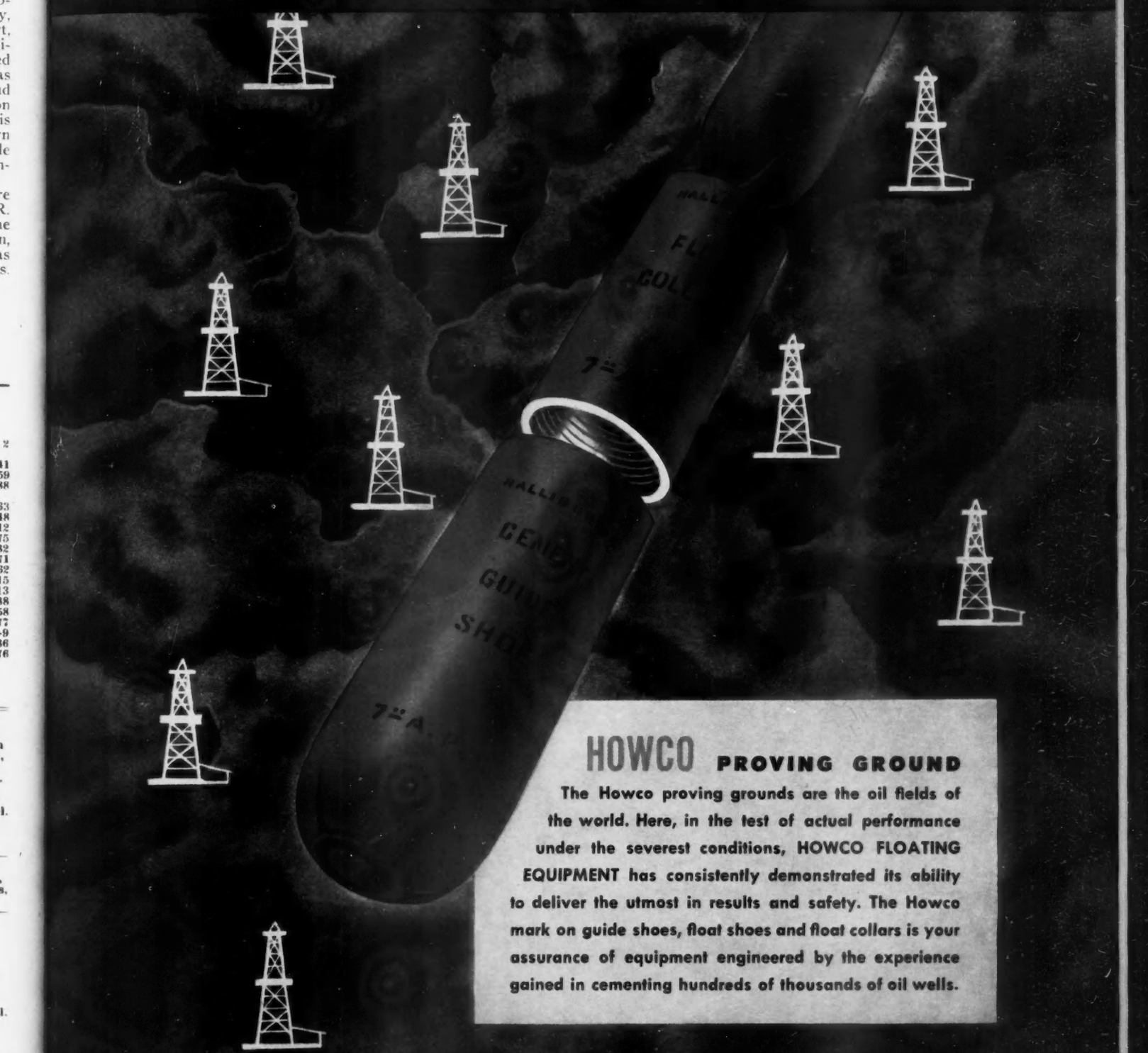
The OIL WEEKLY

JUN 21 1946

EAST ENGINEERING BRANCH

DRILLING, PRODUCTION, PIPE LINE INDUSTRY



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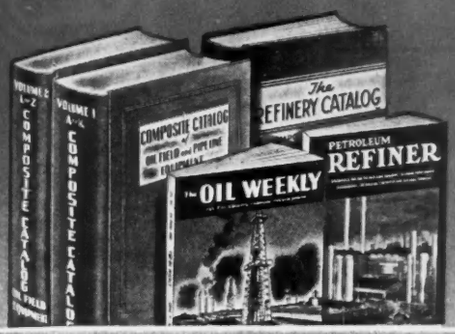

The OIL WEEKLY

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Looking Ahead

WITH THE EDITOR

THE ideas, the experience and the knowledge of some of the nation's most eminent authorities on pipe-lining have been collected for presentation in next week's issue of THE OIL WEEKLY, which will be a special pipe line number.

PIPE LINE ISSUE

Months ago THE OIL WEEKLY's editorial staff was brought together at a conference in which it was collectively decided (1) the subjects of widest appeal and greatest inforation; and (2) the men best equipped to present them to our readers.

Some of the contributors to this issue are Paul Kayser, El Paso Natural Gas Company; G. L. Shanks, The Pure Oil Company; A. M. Hill, Stanolind Pipe Line Company; G. R. Adams, Associated Engineers; Robert L. Buck, Williams Brothers Corporation; J. C. Stirling, Stanolind Pipe Line Company; Howard F. Stover, Gaso Pump and Burner Manufacturing Company; J. Delbert Jones, Gulf Refining Company; Gleason Romans, Airplane Pipe Line Patrol Company; John M. McGregor, consulting engineer; and Francis Coryell, Interstate Oil Pipe Line Company.

In addition to these articles, a four-color insert map showing principal crude oil, natural gas and refined product pipe lines of the United States will be published.

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Youngstown to WEST TEXAS

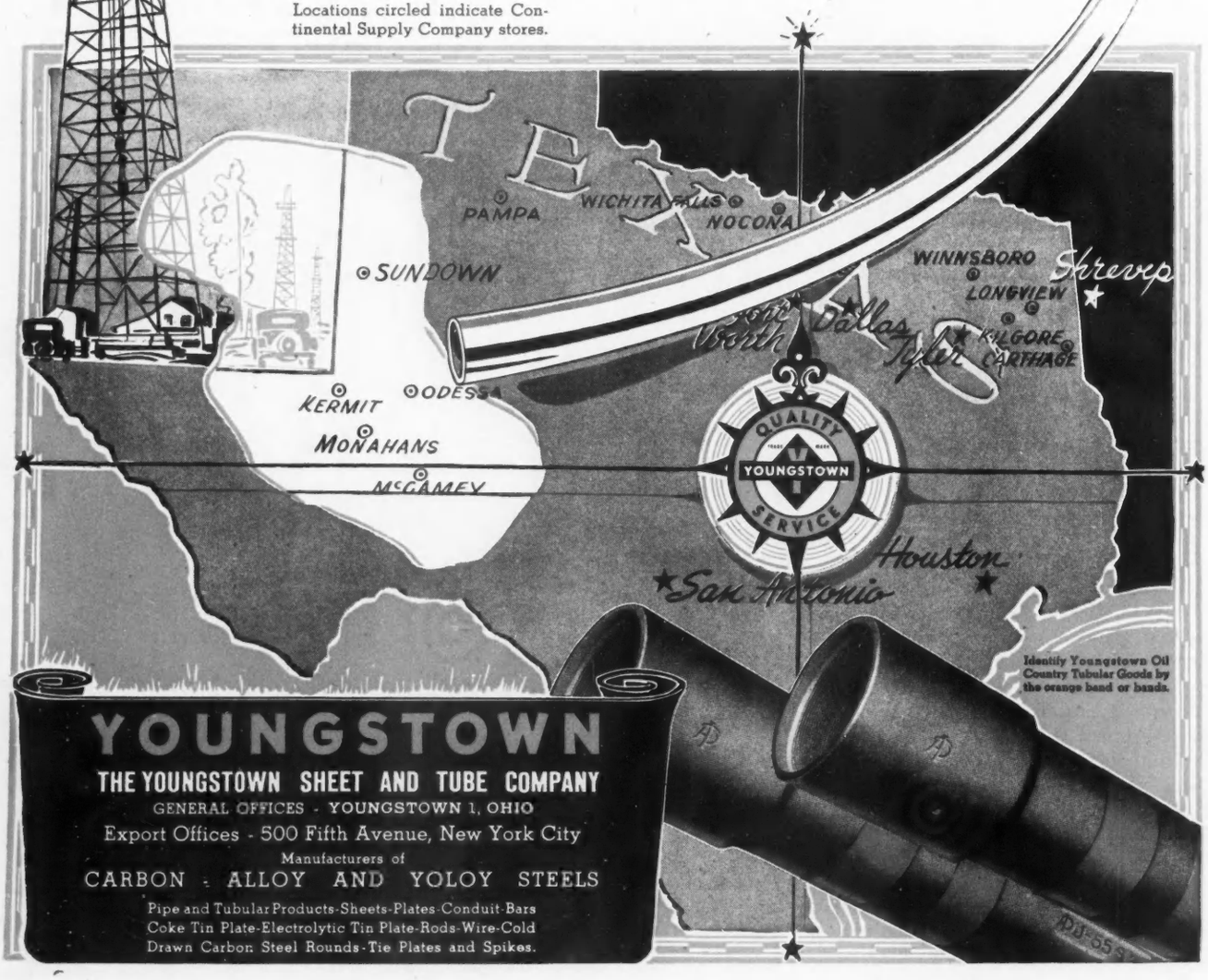
WEST Texas is headed for greater fame as the oil country of tomorrow. Recent exploratory drilling has revealed tremendous petroleum deposits and last year, for example, West Texas added over 200 million barrels to her proven reserves.

1946 sees the country's biggest drilling program in progress in West Texas--nearly 8½ million feet projected. This has not been a deep-well area, but new depths are being reached--at below 15,000 feet--with a producing depth record of 11,422 feet, sixth deepest in the world.

Twelve West Texas fields yield more than 10,000 barrels a day... six exceed 25,000 barrels each. With adequate pipe line facilities West Texas sweet crude production, now around 76,000 barrels daily, could be readily doubled.

West Texas has used thousands of tons of Youngstown pipe since oil was found there in 1922. For future operations, too, there will be plenty of Youngstown quality pipe available, backed by the same dependable service. Here, as in every other Texas district--in fact, in every other oil-producing region--oil men know that orange bands on oil country tubular goods are the sign of good service and dependable performance under all conditions encountered by oil producers.

Locations circled indicate Continental Supply Company stores.



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Independents Fight For Price Decontrol

TO MEET the need for oils there must be adequate price. Oils must be supplied a few years hence by going concerns—not by companies that have gone into bankruptcy trying to sell at less than the oils cost.

One "emergency" replaces another. A year ago the "emergency" was big, general, and vague. There were many uncertainties, so the people were told it was not safe to get back to democratic government. There was the savage monster Inflation that might destroy us. Then there was a protracted reconversion "emergency." Now we are told oil prices cannot be revised, as promised, because of the coal strike.

Surely, further "emergencies" can be thought up, if necessary. And eventually there will be a real emergency, in which many smaller oil operators will have failed and larger ones become despaired and in which oils will be in real shortage for lack of adequate price.

In such circumstances two excuses for control or nationalization of the industry might be expected to be promulgated: (1) the national interest in having adequate oil reserves and supplies, and (2) the elimination of the trend toward fewer and fewer companies or toward monopoly.

These are a quite logical projection of the continuing trend. Where is there an operator who faces the future, makes plans, and goes ahead with development today with the old confidence and self-assurance that spurred him on when success paid off?

Instead of dreams of finding new oil fields and profiting thereby, there is too much thinking now in terms of how much oil will have to be imported to make up for the threatened deficiency of domestic production.

The whole industry is involved in this undermining trend toward permanent regulations and controls. The handicaps spare neither large nor small operator. But ironically, those who must suffer most seriously and quickest are the smaller operators of limited resources.

Associations of independent operators have been quite forcefully leading the industry's fight for uncompromising eradication of price controls on oils. Some weeks ago, clear-cut victory appeared to be virtually won, when there was even a tentative date set for lifting of price controls for the industry. The coal strike was the excuse for continued control.

The victory still is not quite won, but demands for decontrol have not been relaxed. How long it will be until prices are set free probably will depend considerably on how vigorously the independents continue to lead the fight.

Gas Utilization

WASTE Texas natural gas is being put to use rapidly. Within a few years a large portion of the gas being vented will be utilized, as it should be.

Latest and largest step toward utilization of the state's vented gas is the plan to construct a huge pipe line from West Texas to California. It will provide a gas market for an area that long has had a supply far greater than consumption demands, and thus has resulted in much waste. It also is significant because it is the first action taken by the Federal Power Commission on a major line application since the commission began its gas investigation last fall. The commission's approval of this project will encourage other interests to apply for permission to transport gas to regions in need of fuel.

This trend toward utilization and conservation of the state's gas resources is a very important development. Nothing should be wasted when it is practical to use. Utilization of waste gas will bring new wealth to oil and gas companies, to land and royalty owners, to equipment manufacturers, to the state government, and to the business interests and communities of the state in general.

Here's a Peep Into Petroleum's Future

ECONOMIST E. T. Knight, The Atlantic Refining Company, forecast for the Fuel Oil Distributors' Association of New Jersey that 20 years hence (1965) U. S. crude oil production must average 5.4 million barrels daily to meet needs, against about 4.9 million daily at present. He estimated that the industry therefore must find and develop about 2 billion barrels of new reserves annually during the coming 20 years, compared with actual discoveries of 2.1 billion annually in the past 20 years. The task ahead was described as no greater than that performed in the past.

Improved searching and producing techniques will help solve the problem, he said, especially since there are vast unexplored areas favorable for prospecting. If necessary, at times when discoveries may lag, imports from the Caribbean area will make up temporary deficiencies. If needed, over 92 billion barrels of liquid oils can be recovered from shale oil deposits in the United States, said the speaker, and the known deposits of coal and lignite would furnish full needs for combustion purposes and for gasoline and oil for 1000 years at the present rate of consumption.

The forecast for 1965 was based on 4,650,000 U. S. homes heated by petroleum, 42.5 million passenger automobiles, and 6.5 million trucks.

At the same meeting, S. H. Hulse of Esso Laboratories, Standard Oil Company (New Jersey), predicted refiners would continue to increase yields of gasoline and light fuel oils and reduce yields of residual fuel oil which would be imported therefore in greater volume.

* * *

Labor has overrun itself and must be controlled for the benefit of the country as a whole. Labor must accept responsibilities equal to the authority it has taken.

—M. E. COYLE,
Executive Vice President
General Motors Corporation

UNIBOLT now offers a complete, pre-tested CHRISTMAS TREE flow manifold

Here is a complete, pre-tested unit, available in tee or cross type—6,000-10,000-15,000-lb. test, which makes use of UNIBOLT Adjustable Wing Valves instead of ordinary plug or gate valves.

The UNIBOLT fitting on top of the tree simplifies running pressure bombs or paraffin scrapers and can be provided flanged or threaded in any size combination required. The remainder of the assembly is 2-inch. A UNIBOLT choke body, fitted with positive bean and bleeder type blanking plug, provides dependable, trouble-free flow control. Low velocity and therefore non-cutting flow through the adjustable wing valve is assured, since the flow is usually through a small orifice in the positive bean installed beyond the wing valve. The opening in the wing valve is 1-inch. It can be completely repaired "on the job," including replacement of stem and seat. Its parts are interchangeable.

All connections in the flow manifold are standard forged steel UNIBOLT couplings which provide complete interchangeability, greater strength, less weight and higher efficiency. For extreme abrasive conditions, or for long, trouble-free life, hard chrome stems and seats are available.

THORNHILL-CRAVER COMPANY

HOUSTON, TEXAS

UNIBOLT
THE ONE BOLT COUPLING

The Week's News

MAJOR INTEREST now centers on the conference committee which will compromise the differences between the House and Senate on the price control extension bill. Both chambers' version of the measure are equally unacceptable to the administration, and President Truman will be pressed to veto the bill and attempt to keep Congress in session until it develops more satisfactory legislation. Page 24.

FPC Hearings Open—The Federal Power Commission this week begins exploration of the many fields of use for natural gas, including synthetic motor fuel, entering the last lap of its investigation of the whole natural gas situation and the adequacy of present law. Page 25.

Tidelands Case Accepted—The Supreme Court will hear argument on the tidelands case next term if Congress fails to act on the quitclaim resolution before adjournment, but is expected to dismiss the suit if the resolution is adopted and Congress expresses itself definitely on the subject. Story below.

Rubber Plant Disposal—War Assets Administration has recommended to Congress that all synthetic rubber plants not required for the GR-S program be sold as surplus now, while the market is good. RFC proposes to keep 37 plants in operation, with six others maintained in stand-by condition. Page 26.

Big Inch Bids—WAA also has set a new deadline for the receipt of bids for purchase or lease of the big inch pipe lines, and will open proposals July 31, giving first preference to bidders who will keep the lines in oil service. Page 25.

European Production—European crude production last year was about 5 percent higher than that of 1944, with the four leading countries producing in excess of 200 million barrels. Russia still is the big enigma, with estimates of her production varying widely. Page 31.

Gas Exportation—Exportation to Mexico of 50 million cubic feet daily of natural gas by Reynosa Pipe Line Company was authorized by the Federal Power Commission over Texas objections, together with continued export of 31 million cubic feet daily by United Gas Pipe Line Company. Page 32.

Kentucky Meeting—Kentucky Oil and Gas Association heard attacks on federal control of the oil industry, re-elected officers. Page 29.

Permian Basin Lines Loaded—A peak volume of oil is being moved by trunk lines from the Permian Basin, West Texas. Shell announced a cut of purchases due to lack of pipe line capacity. Story below.

Louisiana Taxes—School groups are insisting on larger appropriations and have found appetizing the prospect of an increased tax on natural gas. Page 26.

Gas State Combine—A combine of gas-producing states of the Southwest looking toward increasing well-head gas prices is suggested in a resolution introduced in the Louisiana Senate.

Senate Approves Changes In Federal Leasing Laws

Without controversy, the Senate on June 14 approved the Hatch-O'Mahoney bill to amend the Federal Leasing Act to provide a flat 12½ percent royalty on production from new discoveries on the public lands, expanding the acreage for geological and geophysical examinations and correcting administrative provisions against which criticism have been leveled.

The measure now goes to the House, where the public lands committee held brief hearings on the heels of those held by the Senate committee. No opposition has been expressed to the legislation and it is expected to be enacted into law before adjournment of the session.

Oklahoma Electric Log Proposal to Be Opposed

Filing of electric logs and other technical information with the Oklahoma Conservation Department, will be opposed vigorously when the Corporation Commission resumes hearing on June 24 and 25. Walker T. Pound, chief conservation officer, is sponsoring general revision and amendments to present rules. His recommendations embracing findings of a committee headed by W. A. Delaney, Jr., Ada independent oil operator.

Chief objection to the amendments is a proposed rule which would require operators to file various types of well log surveys, geological and interpretative logs, and other "confidential" information within 90 days after completion of a well.

Permian Basin Trunk Lines Operating At Peak Figure; Shell Cuts Purchases

Shell Oil Company has restricted its purchases of controlled and outside crude in the Wasson field, second largest source of production in West Texas, to 87 percent of the allowable retroactive to June 1. This curtailment is attributed to the allowable production in the Permian Basin exceeding the capacity of its two 10-inch trunk line outlets and inability of the company to book additional common carrier space used for months in other lines.

A company statement to operators explained that its West Texas purchase nominations for June averaged 74,695 barrels daily, but the allowable of its connections exceeded the above figure by 14,345 barrels daily. These figures are exclusive of New Mexico purchases. The bulk of the excess was credited to the Wasson field, where the company's well connections have an allowable of 34,915 barrels daily, or 12,310 barrels surplus. Arrangements have been made to divert all but 4300 barrels of this excess to other carriers.

The 11 trunk lines serving the Permian Basin are operating at an all-time peak volume, and all are exceeding their average rated capacity except for a two-unit system that has a bottle-neck that will be eliminated shortly. Trunk line runs from the district averaged 577,385 barrels daily during the week ending June 2. During this period supplemental movement by tank cars averaged 35,176 barrels daily, and will be expanded to about 50,000 barrels daily, if cars are available.

Stanolind Pipe Line Company, owner of a 16-inch trunk line that extends from the Slaughter field to Drumright, Okla., and points north, exceeded its rated capacity of 66,000 barrels daily in pumping 67,424 barrels daily. This carrier is being extended 35 miles to the Wasson and nearby fields, which yield more desirable crude, and will later tap sweet crude supplies in Andrews County. Stanolind shortly will add intermediate pumping stations to progressively step up the capacity as new fields are invaded, and can handle 116,000 barrels daily if a total of eight stations are installed. It is presently operating with a station in the Slaughter field and one near Hobart, Okla.

Supreme Court Agrees to Hear Case for Tidelands

Clearing its slate preparatory to adjourning its 1945-46 term, the Supreme Court last week announced that it would hear the government's case for possession of the California tidelands. Argument is expected to be heard early in the 1946-47 term which begins next October.

The court did not indicate whether its acceptance of the case was contingent upon the failure of Congress to enact pending legislation relinquishing federal

claims to the offshore lands. Presumably, however, if the Senate adopts the resolution approved by its Judiciary Committee, already passed by the House, and it is signed by the President, the question would become moot.

The government's suit was filed in the Supreme Court last October 19, coincident with the dropping of a similar suit brought in the Federal District Court in Los Angeles May 29, 1945. This was several months after resolutions to confirm state title to the tidelands began to appear in the House. The first resolution was introduced in January, 1945, and in March a considerable number of more or less identical measures were submitted.

The House approved the legislation in September, 1945, and the Senate Judiciary Committee made a favorable report on it April 26 of this year, without amendment. Efforts now are being made to have the measure brought up in the Senate for action before adjournment of Congress for the summer.

Razing of Jap Synthetic Oil Plants Is Recommended

Industrial disarmament of Japan should include complete destruction of all synthetic oil plants and reduction of her oil storage capacity from the pre-Pearl Harbor figure of 55 million barrels to six or seven million barrels, it was recommended last week in a report of a national engineers committee to the secretaries of State, War and Navy.

The committee, of which W. B. Heroy is a member, has been engaged since last November in identifying the critical war potential elements of Japanese industry to be eliminated or controlled.

The recommendations follow the lines of the program laid down for the elimination of Germany's ability to wage war by suppressing the production of petroleum products, steel and other commodities not essential to the operation of the civilian economy.

Navy Making Tests Of Many Synthetic Fuels

Plans for a long-term study of synthetic fuels in co-operation with the oil and engine industries were announced last week by the Navy Department, following a demonstration of their use in standard watercraft and vehicles at the Naval Engineering Experiment Station at Annapolis, Md.

Synthetic gasoline, diesel fuel and lubricants produced from natural gas, coal and shale were put into the tanks of boats and vehicles, whose performance showed no apparent change from that with natural products.

Mother Hubbard Discussions Said to Be At Standstill

The government's "Mother Hubbard" suit against the oil industry appeared to be at a standstill last week but a Department of Justice spokesman expressed the belief that company representatives would resume their contact with the department before the new deadline of July 22 for the filing of answers is reached.

So far, it was said, the negotiations had been exploratory only and no concrete offers for settlement of the suit had been submitted for department consideration.

The department official pointed out that the defendants have been given another month's delay in which to file their answers to the government's complaint, leaving time for further negotiations. Contact with the oil group was suspended several weeks ago, and company officials are reported to have met last week to discuss their future course.

The delays so far agreed to by the department have been for the purpose of giving the companies time in which to shape up consent-decree proposals and it was indicated that if they decide to abandon that form of settlement in favor of fighting the issues out in the courts, further delays will be resisted.

Senate Amendment Calls for Removal Of All Controls on Petroleum Prices

Price controls on crude petroleum and all petroleum products will be eliminated June 30, if the House of Representatives accepts an amendment to that effect inserted into the price control extension bill by the Senate and President Truman signs the measure. The amendment, sponsored by Senator Ed Moore of Oklahoma, was adopted by the Senate in the final hours of debate. The Senate earlier had tentatively accepted and then defeated a similar amendment by Senator Elmer Thomas of Oklahoma.

From the standpoint of the industry, long fighting for the elimination of oil-price ceilings, nothing else in the bill mattered much, but administration officials declared the Senate version worse than that of the House, which President Truman had said was unacceptable to him, and a strong drive was started to induce the President to veto the measure.

The amendment was brief: "Price controls with respect to petroleum and petroleum products processed or manufactured in whole or substantial part from petroleum, shall be removed not later than June 30, 1946."

There was considerable discussion of the oil situation during the debate. Administration spokesman tried to kill it as they tried to kill every amendment which would weaken the control of the price administrator, but in the final showdown the Senate adopted it by voice vote.

Passage of the bill by the Senate represented one of the most severe defeats President Truman has yet experienced, with no possibility whatever of salvaging any of the controls he wanted OPA to retain.

While passage of the bill with the Moore amendment will permit the oil industry to ask higher prices all along the line, the industry itself will have to pay higher prices for the things it uses. This will come about through provisions for establishment of a special de-control board to direct the removal of price restrictions when supply and demand are in approximate balance for any commodity, and requiring OPA to permit producers to add to their 1941 ceiling prices any subsequent rises in material and labor costs.

Lend-Lease Report Shows Huge Petroleum Volume

Lend-Lease exports of petroleum products from March 11, 1941, to December 31, 1945, has a value of $2,560,974,000, representing slightly more than 5 percent of all lend-lease aid, it was disclosed in a report sent to Congress by President Truman. Of the total, the British Empire received $2,333,672,000 worth, the USSR $134,160,000 and other countries $93,142,000.

Reverse lend-lease aid received by the United States up to September 2, 1945, amounted to $7,345,747,000 of which $1,530,230,000 represented petroleum and coal products.

Justice Department Fights Anti-Trust Law Exemption

Legislation exempting pipe lines, railroads and certain other carriers from the limitations of the anti-trust laws with respect to rate and other agreement subject to Interstate Commerce Commission control has been favorably reported to the Senate by its Interstate Commerce Committee.

The legislation, which is aimed at relieving the carriers from the threat of anti-trust prosecutions, was bitterly fought by the Department of Justice. It has already passed the House but House concurrence will be necessary before it can be finally enacted because of amendments incorporated by the Senate committee.

Tribes' Tracts Sold

Thirty-three of the 73 tracts offered recently at a Five Civilized Tribes oil and gas lease sale at Muskogee, Okla., were purchased for a bonus of $32,288.19, or roughly $12.86 per acre.

The top price was paid by Fred Chapman of Ardmore, who paid $6024, or $79.30 an acre for tract 70, 80 acres in 12-5s-1w, Carter County, in the Lone Grove Southwest pool.

WAA Sets Bid Dates

War Assets Administration has announced that no bids will be accepted on the Utah Oil and Refining Company plant at Fort Laramie, Wyo., afternoon, June 17, or the Houdry Process Company plant at Paulsboro, N. J., after 4 p. m., June 19.

FPC to Hear About Prospects of Products Made from Natural Gas

Prospects of developing synthetic products, including liquid fuels, from natural gas and coal are expected to be a major feature of the final sessions of the Federal Power Commission's hearings in its natural gas investigation, opening in Washington today.

Bureau of Mines and Geological Survey experts are to describe their research and other activities in these fields, and testimony on the possibilities of producing gasoline from natural gas and natural gas from coal will be submitted by Hydrocarbon Research, Inc.

FPC officials last week outlined the testimony expected to be presented by various groups during the hearings, which are scheduled to run for five weeks or longer.

The Kansas Corporation Commission, New York Public Service Commission and California Railroad Commission will wind up the presentation of the state regulatory bodies on the production and utilization of natural gas in their states, and additional information on the California situation will be submitted by the Independent Natural Gas Association of California.

The natural gas industry committee is prepared to offer a dozen or more witnesses to cover every phase of the subject, including natural gas reserves, transportation and utilization, administration of the Natural Gas Act, conservation, field operations, prices, synthetics and atomic energy.

The National Coal Association will join with the United Mine Workers, Railway Labor Executives Association and other coal and railroad groups in showing the importance of the coal industry in the national economy and the possible effects upon it of the substitution of natural gas as a fuel.

Consuming industries will send representatives to the hearings to explain the use of natural gas as a raw material for chemical products and specialized manufacturing processes.

July 30 Is New Date Set For Big Inch Line Bids

The War Assets Administration last week announced a new final date, July 30, for the receipt of offers to purchase or lease the Big Inch and Little Big Inch pipe lines, and will open the bids in public the following day.

WAA Deputy Administrator John J. O'Brien requested that all interested persons or groups discuss their proposals with the agency as soon as possible so that they may be checked and analyzed before being committed to writing.

WAA, he pointed, out, is interested not only in the financial aspects of the proposals submitted, but in the use to which the lines may be put, together with details on the operational abilities of companies or groups submitting proposals.

It was emphasized that first performance will be given to continuing both lines in petroleum service, thereby assuring their availability in the event of a national emergency, but that offers for the conversion of the lines to natural gas service will be entertained and are invited.

George C. Gibbons, Texas and U. S. Industry Leader, Dies

George C. Gibbons, 57, executive vice president of the Texas Mid-Continent Oil & Gas Association, died June 13 in Dallas of complications resulting from a throat affliction.

George C. Gibbons

Born August 19, 1888, on a farm at Duncan Falls near Zanesville, Gibbons was educated in the country schools and academies there, later attending Ohio University. After a time as a railroad freight claim clerk, he entered Kansas State College, being graduated with a B.S. degree in agriculture. He later studied law at Washburn law school.

His work as associate supervisor of the agricultural experiment station at Fort Hays, Kans., and as manager of the Condon Ranch led to a call to Oklahoma Agricultural & Mechanical College as state agronomist. He took a leading part in the development of Oklahoma farming and livestock raising in this work and as consultant to some of the large ranches.

In 1936 when the Texas Mid-Continent began expanding its program, he was named executive vice president, moving to Dallas. Under his administration, the association grew into one of the largest and most active oil service organizations.

After Pearl Harbor the association devoted itself to wartime activities, Gibbons' role in this program winning him official citations from both the PIWC and War Production Board, which he served as a $1 a year man. He also cooperated with the Eighth Service Command to set up an air raid warning network from the Gulf to the Mid-Continent, using oil company telephone facilities.

He was active in other oil organizations, including The American Petroleum Institute and Independent Petroleum Associaion of America.

Funeral services were held Saturday in Dallas with interment in Ardmore, Okla.

Gibbons' death cancelled the midyear meeting of Texas Mid-Continent directors, scheduled June 14 at Fort Worth.

Dual Completion Decision May Become Texas Landmark

The re-hearing on the application of Superior Oil Company and John H. Blaffer for permission to produce their dually completed Sadie E. Thomasson No. 1 well, Sugar Valley field, Matagorda County, Texas, was held before the Texas Railroad Commission last week.

It was the contention of the applicants that the well can be producer as a dual without danger, physical waste or reservoir damage. Further, they said, a denial by the Railroad Commission of permission to produce it as completed would be discriminatory. The decision on the application may well be a landmark to guide future actions of the Commission.

Superior previously was denied permission to produce the well as a dual.

The trend which is being followed in Oklahoma and Kansas to do away with dually completed wells was discussed. T. P. Hoeffer, petroleum production engineer for The Otis Company, said that the difficulty encountered with duals in Kansas has resulted from an attempt to pump large quantities of salt water (over 50 percent in some wells) from each horizon. Furthermore, the Kansas Corporation Commission's practice of permitting the allowable from one zone to be produced during the first 15 days, and the allowable from the other zone, during the remaining 15 days causes failures, he said. In his opinion, the difficulties encountered in Kansas will not be encountered in Texas. He knew of no major failures in duals in Oklahoma.

Productive Rangely Field Records Its First Failure

The Rangely oil field of Rio Blanco County, Northwest Colorado, has had its first failure, Newton Oil Company having abandoned its Cobb-Stringer Government 1, after getting water from the Webber sand. The test which may have defined the south limit of the pool, was abandoned at 6859 feet, total depth.

Seventy-one consecutive producers were drilled at Rangely before the initial failure, and in little more than a year of Webber sand development the field is producing 19,856 barrels of oil a day.

The abandoned well is in SE SE 4-1n-102w, about 1½ miles southeast of the nearest producing well.

Asks More Appropriations For Louisiana Oil Work

State Conservation Commissioner Jos. L. McHugh has asked the Louisiana Legislature for a hike in funds for his department from $140,000 to $724,000 for the biennium.

The state now has 296 active fields, oil and gas, he reported, an increase of 142 since 1940, and his department, he contends, cannot supervise these fields properly with its staff of 89 spread over six districts.

Synthetic Rubber Disposal Plan Includes Only Specialized Plants

Immediate disposal to private interests of ten specialized plants used in the wartime synthetic rubber program was recommended to Congress last week by the War Assets Administration, liquidating a government investment of $182 million, but it was indicated that no disposal program has been worked out as yet for the 28 copolymer, petroleum butadiene and alcohol butadiene plants costing $488 million which accounts for the all-purpose rubber production and which are to be considered in conjunction with a program being developed for insuring a minimum peacetime synthetic rubber industry.

The plants recommended to be disposed of produce GR-1 (butyl) and GR-3 (Neoprene), styrene, furfural and carbon black.

Included in the list are the butyl plants operated by Standard Oil Company (New Jersey) at Baton Rouge and Humble Oil & Refining Company at Baytown, Texas, 38,000 and 30,000 tons a year, respectively; the neoprene plant operated by E. I. duPont de Nemours & Company at Louisville, 60,000 tons a year; five styrene plants operated by Carbide and Carbon Chemical Company at Institute, West Va.; Dow Chemical Company at Los Angeles and Velasco, Texas; Koppers Company, Inc., at Kobuta, Penn., and Monsanto Chemical Company at Texas City, Texas, having an aggregate yearly capacity of 187,500 short tons; the furfural plant operated by Q. O. Chemical Company at Memphis, having a yearly capacity of 24 million pounds, and the carbon black plant operated by United Carbon Company at Odessa, Texas, having an annual capacity of 41 million pounds.

Butyl-Neoprene Special

These plants represent the entire national butyl rubber capacity, more than 90 percent of the styrene capacity, 86 percent of the neoprene, 66 percent of furfural and 8 percent of carbon black. The government owns five other carbon black plants, representing an investment of $10,000,000, which also are recommended for early disposal.

The WAA pointed out that butyl and neoprene show promise of developing a "somewhat special" peacetime market. Market prospects for styrene were described as such that the plants producing it are capable of disposal on favorable terms now without interfering with their contribution to the GR-S program. Similarly, the furfural and carbon black plants also have favorable marketing positions without interference with the synthetic rubber production.

The entire butyl production of the country, from petroleum, is confined to the two government-owned plants which are so tied in with the refineries of the wartime operators that they are the logical purchasers. Heavy demand for butyl rubber for inner tubes augurs well for maximum production for a considerable period. The neoprene plant also was seen likely of being taken over by the wartime operator.

Prospects Listed

Prospects for profitable operation of the Memphis furfural plant in peacetime are good, provided an adequate supply of the waste raw materials can be obtained at sufficiently low cost.

The WAA report pointed out that carbon black manufacturing processes are so wasteful that several states have conservation laws permitting only sour grades of gas to be used and, since it is more profitable to sell natural gas for fuel, the supply exists only in the abscene of adequate gas pipe line facilities. Immediate requirements are estimated at 1200 million pounds or more annually which includes 500 million pounds for foreign markets "at least for some years."

Styrene is assured of a substantial postwar market, a year's production of 300,000 long tons of GR-S rubber requiring 150 million pounds. Styrene also has important and growing markets in the dye and synthetic resin industries.

The monopoly issue arises as one of the difficulties affecting the disposal of plants, the WAA declared.

Production Plans

Testimony released last week by the House Appropriations Committee disclosed that during the fiscal year beginning July 1 the RFC plans the production of 732,000 tons of synthetic rubber, at a cost of $320,269,000, and the purchase of 495,000 tons of natural rubber, 100,000 tons of which will be put into the stockpile.

The program contemplates the operation of 37 plants, with six others maintained in stand-by condition at a cost of $2 million. It is also planned to expend $28,797,000 during the year to substitute and add improved machinery to the operating plants in an effort to get more economical production and take advantage of mechanically improved and more permanent equipment as it becomes available.

The RFC figures a net loss of 0.63 cent per pound on all synthetic rubber produced and sold during the year and, if OPA ceilings of natural crude are maintained, foresees a loss of $25,839,000 on the 395,000 tons it proposes to buy for resale to consumers.

THE OIL MAN'S CALENDAR

JUNE 17	FPC Gas Hearing, Washington, D. C. Court of Appeals, 5th and E.
25–26	Postponed Meeting, API Board of Directors, Dallas, Adolphus Hotel.
27–28	Pennsylvania Grade Crude Oil Association, Annual Meeting, Pittsburgh, William Penn Hotel.
AUG. 8–9–10	Interstate Oil Compact Commission, Quarterly Meeting, Grand Rapids, Michigan, Pantlind Hotel.
Sept. 16–18	AIME World Conference on Mineral Resources, New York, Waldorf-Astoria Hotel.
OCT. 1– 2	American Association of Oilwell Drilling Contractors, Annual Meeting, San Antonio, Plaza Hotel.
3– 5	AIME, Petroleum Division, Annual Meeting, Galveston, Hotel Galvez.
7–12	American Gas Association, Annual Convention, Atlantic City, N.J.
16–18	Texas Mid-Continent Oil and Gas Association, Houston, Rice Hotel.
24–25	AIME, Petroleum Division, Annual Meeting, Los Angeles, Ambassador Hotel.
28–30	Independent Petroleum Association of America, Annual Meeting, Fort Worth.
NOV. 11–14	American Petroleum Institute, Annual Meeting, Chicago, Stevens Hotel.

Louisiana Legislature Discusses Gas Taxation

The proposal to hike the gas-gathering tax in Louisiana from one-half cent to three cents per thousand cubic feet, which has caused one of the bitterest controversies before the state legislature during the current session, has been shelved by its advocates who are now placing their hopes on a three cent sales levy, which would be almost identical in effect.

Presented originally as a conservation measure, the bill has been seized upon by school groups looking for bigger appropriations. Whether the bill would pass both branches is doubtful, but it was progressing steadily through the house where it was taken on a minority report, the House Ways and Means Committee having disapproved it. The three-cent bill would raise an estimated $15 million.

Meanwhile this committee is holding up all other gas tax bills so that if the three-cent measure fails, another could be approved.

Freon Found Effective to Extinguish Gasoline Fires

The Bureau of Mines last week reported that Freon 11 (trichloromonofluoromethane), a refrigerant, can be used effectively to extinguish gasoline fires and prevent explosions.

Freon 11 was one of six inert gases studied with a view to their value as gasoline-fire extinguishers and proved to be the best of the flame-quenching agents. Its major commercial use now is in centrifugal compressors for large refrigerating or air-cooling units.

The appartus used, methods of conducting the tests and the results obtained with the various inert gases in connection with gasoline vapor-air mixtures are described in Report of Investigations 3871 in graphic form which permits a determination of the explosion hazards of any given combination of the gases without resort to laborious calculations. Copies of the report may be secured without charge from the Bureau of Mines in Washington.

East Texas Producers Asked To Observe Proration Rules

East Texas field producers must adhere closer to proration schedules and rules of the Texas Railroad Commission in the future or face pipeline severance.

An order to this effect, which will be sent soon to all operators in the field, is one of the results of a committee meeting in Austin with the Commission concerning the flaring of more than 30 million cubic feet daily of rich casinghead gas in the field.

At the hearing, presided over by Jack K. Baumel, chief engineer of the Commission, evidence was given that gasoline plants in the field were forced to flare the daily peak gas volumes over the capacity of their plants as a result of intermittent production of oil wells in the field. There are no pipeline outlets available for the gas for industrial or domestic consumption because of the intermittent supply.

Remedy Suggested

Members of the committee contend that peak volumes of gas are caused by production in the field in violation of Commission rules and regulations. Gas is being wasted at three points in the field: (1) flaring of unprocessed gas in the plants; (2) flaring of gas on leases because it cannot get into the pipeline, and (3) flaring gas on leases from wells not connected to plants.

"Operators are not allowed to produce more than 10 percent more than their daily allowable each day," said Baumel in discussing Commission regulations. "In the future, producers must make their daily allowable each day for the number of producing days and stop producing the entire allowable of a well within a period of only a few days."

At the present time, the greatest gas volumes are received by gasoline plants during the morning hours and are beyond the capacity of the plants. In the afternoon the load declines and then increases to a second and small peak in the late afternoon. The supply of gas during the night is barely enough to keep the plant operating and in some instances gas must be brought from surrounding fields. It is believed by the Commission and the committee that if the wells are produced according to regulations, that the supply will be continuous and steady over each day permitting the plants to process the gas for liquid products, thus eliminating the wastage. Gasoline plant operators also will attempt to arrange production schedules with producers to further smooth out peaks in the gas supply.

The committee will meet again with the Commission during the month of August to check the results of the plan over the intervening period and to make any changes necessary.

Among those present at the meeting were D. V. Carter, Magnolia Petroleum Company; R. F. Morgan, Pineda Producing Company; John O. Sue, and J. J. Carter, Humble Oil & Refining Company; O. M. Milliron, Bell General Pipe Line Company; and R. A. Worley, Parade Gasoline Company.

Crude Oil Production in the United States

(Estimates compiled by THE OIL WEEKLY. All figures indicate daily averages in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED June 15	June 8
Alabama	1,150	1,200
Arkansas	73,900	73,250
California	869,800	865,200
Colorado	32,500	30,400
Florida	250	250
Illinois	207,400	207,700
Indiana	20,500	19,800
Kansas	282,900	239,450
Kentucky	31,000	30,650
Louisiana	377,150	376,150*
North Louisiana	81,050	80,050
South Louisiana	296,100	296,100*
Michigan	47,400	46,750
Mississippi	63,650	64,350
Missouri	100	100
Montana	19,350	19,350
Nebraska	750	750
New Mexico	98,850	98,850
New York	13,400	13,400
Ohio	7,500	8,500
Oklahoma	383,150	385,000
Pennsylvania	34,900	37,900
Tennessee	35	35
Texas	2,257,750	2,257,750*
Tex. R. R. Comm. Districts:		
Dist 1—S. Central	19,650	19,650
Dist. 2—Lower Gulf Coast	155,650	155,650
Dist. 3—Upper Gulf Coast	515,400	515,400
Dist. 4—S. West	229,600	229,600
Dist. 5—E. Central	43,950	43,950
Dist. 6—E. Texas Field	326,000	326,000
Dist. 6—Rest of N. East	107,350	107,350
Dist. 7-B—W. Central	32,400	32,400
Dist. 7-C—West	28,450	28,450
Dist. 8—West	580,450	580,450*
Dist. 9—N. Central	132,400	132,400
Dist. 10—Panhandle	86,450	86,450
West Virginia	8,150	7,850
Wyoming	111,500	114,300
Total United States	4,943,035	4,898,935*

* Revised.

Total stocks, foreign and domestic, June 8, as reported by the Bureau of Mines were 218,489,000 barrels with a daily average production of 4,896,000 barrels and runs to stills 4,827,000 barrels.

Bureau of Mines Reports Oil Statistics For 1944

United States crude petroleum production in 1944 reached a total of 1,677,904,000 barrels, with an average value of $1.21 per barrel at the well, an increase of 172,291,000 barrels and one cent per barrel in price over 1943, the Bureau of Mines reported last week.

Crude imports were 44,800,000 barrels in 1944 against 13,800,000 barrels the preceding year, while crude exports were 34,200,000 barrels against 41,300,000 barrels.

The total number of producing wells increased from 407,170 at the end of 1943 to 412,220 at the close of 1944, and the average production per well increased from 10.2 to 11.2 barrels per day.

Crude runs to stills reached a new high of 1,665,684,000 barrels, an increase of 235,900,000 barrels over 1944, with refinery operations reaching their peak in December when they averaged 4,681,000 barrels daily.

Motor fuel production totaled 739,340,000 barrels for the year, a gain of 131,200,000 barrels, while distillate fuel oil amounted to 239,152,000 barrels, an increase of 27,600,000 barrels. Residual fuel oil production was 461,455,000 barrels, an increase of 44,000,000 barrels; kerosine, 78,344,000 barrels, an increase of 6,100,000 barrels, and lubricating oil, 41,106,000 barrels, an increase of 2,500,000 barrels.

Total domestic demand, including military demand at home and abroad, was 1,780,350,000 barrels against 1,595,729,000 barrels in 1943.

Companies Ask Increased Allowables in Louisiana

Higher allowables for July and August were requested by Louisiana oil operators attending the statewide proration hearing held in New Orleans last week. Major purchasers reported declining stocks and insufficient crude to meet current demand.

C. H. Whitman, representing Standard Oil Company of New Jersey, recommended allowables on the highest per-well rate which prevailed in Louisiana for a period of several months ending with February, 1946.

"My company's inventory situation," Whitman explained, "is such that it needs to replenish crude stocks to the extent of about one million barrels. All crude in Louisiana has been and is now flowing into normal commercial channels. Apparently the inventory position of other companies is such that they are unable to supply us with any crude from stocks on hand."

Shell and Gulf both endorsed Whitman's statement, and other companies indicated their support of his stand by increases in their nominations.

Big Inch Electric Lines Offered by Government

The War Assets Administration has put up for sale approximately 117 miles of government-owned electric power transmission lines and appurtenances built during the war in Arkansas and Missouri to provide power for three pumping stations on the Big Inch pipe lines in those states.

With an eye to the future of the pipe lines themselves, however, the WAA is making the sale of the power system contingent upon agreement by the purchaser to maintain it, or satisfactory substitutes therefor, in readiness to supply service if, when and as requested for the future operation of the three pumping stations.

Tankers for Sale

The Maritime Commission is inviting bids, to be opened July 10, for the purchase, for operation, of the *"Blue Sunoco,"* a 1588-gross-ton motor tanker built in 1929. The minimum bid figure is fixed at $50,000.

The commission also will sell the *"Mission Santa Maria,"* a T-1 tanker of 16,281 deadweight tons built in 1944, for scrapping. The vessel was grounded off the coast of Florida and sustained extensive hull damage, but it is believed the main propulsion equipment and auxiliary equipment may be found suitable for other than marine transportation, and particularly as a floating power plant.

Eastern API Sessions

Production group names Anderson head after two-day discussion of technique, economics

Nearly 400 engineers and oil producers from seven states attended the spring meeting of the Eastern District of the American Petroleum Institute, Division of Production held June 13-14 in Pittsburgh, Pa.

Delegates attending the first day's session heard a blistering attack on Chester Bowles and the rest of the OPA bureaucracy by Walter S. Hallanan, president of Plymouth Oil Company of Pittsburgh.

The oil men were welcomed to Pittsburgh at the opening session on Thursday by Mayor David L. Lawrence. Governor Edward Martin and Attorney General James H. Duff of Pennsylvania were guests of honor at the banquet which climaxed the convention.

There were four technical sessions during the two-day meeting, devoted to problems facing the industry in the postwar period. Subjects discussed included design and construction of water pumping plants, purification of water supply, gas requirements in gas drive oil recovery and gas recovery systems.

The second days technical sessions were given over to talks on oil and gas possibilities in the Appalachian region, safety in the oil and gas fields, oil economics, marble shooting, reconditioning of drowned gas wells, deep rotary drilling and deep cable drilling.

Hallanan used the word "dishonest" to describe what he termed the "monstrous propoganda compaign of the OPA bureaucrats to justify their continued control of the oil industry."

"Total war has been over now for almost a year," he declared, "but we find that those who came into extraordinary power over the lives of their people as the result of the emergency are determined to retain that power.

"The oil industry represents a juicy morsel for those forces who want to keep America's economy under the permanent control of a political bureaucracy in Washington. More than any other industry it is symbolic of American freedom of opportunity, and the bureaucrats know that if they can subjugate this great industry affecting the daily lives of the American people, they will have no trouble in keeping control of the others.

"OPA's refusal to remove price controls from crude oil and petroleum products is evidence of the determination of the bureaucrats to retain for all time to come the power that they wielded over American industry during the emergency of war.

"Economic Stabilizer Chester Bowles in July of last year said that controls would be released from each industry as rapidly as supply came into balance with demand. That solemn pledge, which has since been reiterated a dozen times by Bowles and other OPA authorities, has gone the way of all their promises.

"The oil industry made a major contribution to the war effort. Of the 7 billion barrels of oil produced between December, 1941, and August, 1945, to meet the war requirements of America and its allies, more than 5½ billion barrels came from the United States. This is one-fifth the oil that has been produced in America since the birth of the industry in 1859.

"If those who blazed the wildcatter's trail in past generations in finding and developing our petroleum resources had been compelled to carry on under the thousands of mandates and regulations of Leon Henderson, Chester Bowles, and their star-gazing group, I wonder if the industry would have been prepared to meet the demands of the war effort; I wonder if the war could have been won. Truthfully, I do not wonder because I know the answer—and so do you. What we are deeply concerned about is how much longer we can carry on maintaining our reserve position and meeting the ever-increasing demands of our economic machine under such distorted bureaucratic control.

"These bureaucrats enjoy the privilege of pushing people around. They stand definantly today to challenge the right of the people to run their own government."

H. M. McClure, independent producer of Alma, Mich., executive secretary of the Oil and Gas Association of Michigan and president of the National Stripper Well Association gave a treatise on the present low price of crude oil, pointing out that prices being received are in many instances below actual production cost. His topic was "Present Economics of Crude Oil."

E. Holley Poe of New York read a paper on "Federal Power Hearings in the Natural Gas Industry" wherein he discussed the interrelationship of the oil and gas industries with respect to governmental regulation.

A. R. Ellenberger of Smith-Newton Oil Company, and George W. Holbrook co-authored a paper entitled "Source and Purification of Water Supply," which discussed the various sources of supply for water flooding operations and methods of treating it prior to injection, so as to obtain water which is non-corrosive to equipment, will not clog or plug the sand in input wells, and which will give maximum recovery of oil. The various impurities found in water were discussed, methods of treatment outlined, equipment in common use described with methods of operation and costs and operating requirements given.

Holbrook of Empire Gas and Fuel Company, Ltd., Wellsville, N. Y., also was author of "Design and Construction of Water-Pumping Plants," which showed the water-pumping plant or "pressure plant" to be the prime source of the energy utilized to move oil in the sand in secondary recovery operations by the water flooding methods. Pressure and quantity requirements for such plants were discussed briefly, and simple formulas for calculation of power given. His discussion covered margins of design, service conditions, discussions of site, building of storage tanks, pumps, prime movers, auxiliary equipment, piping, protective devices and operating variables.

Robert J. Day, instructor in petroleum and natural gas engineering at the Mining Industries Experiment Station of The Pennsylvania State College, is co-author with S. T. Yuster Chief of the Division of Petroleum and Natural Gas Engineering at the College, of a paper on "Gas Requirements in Gas-Drive Oil Recovery," which discussed the effects of pressure gradients, permeability, viscosity, and connate-water saturations, from both laboratory and field standpoint on the gas requirements for recovery by gas drive. Field evidence was given to support the laboratory trend that the higher the drive gradients the greater the efficiency of oil recovery. Relationships were given for calculating the gas-oil ratio as a function of time and as a function of total liquid saturation.

Yuster also presented a paper on "The Rehabilitation of Drowned Gas Wells," a study of the problem of water-drowned gas wells and finding the source of difficulty. He related methods developed for the safe drowning of wells so they may be brought back into production after treatment with very little change in productivity, methods which have been tested in the field and found successful.

Douglas Rogers, Jr., of South Penn Natural Gas Company, Parkersburg, W. Virginia, read a paper on "Gas Recovery Systems," discussing the recovery of gas from separators and stock tanks. He gave figures on the amounts and types of gases recovered and described various methods of collecting and delivering these gases to the lease fuel system. The use of safety devices and automatic controls was emphasized. Rogers also stressed the economic limita-

Officers Elected

Election of officers and advisory committee at the API Eastern District, Division of Production meeting, resulted as follows:

R. B. Anderson, chairman, Columbian Carbon Company, Charleston, W. Va.

I. G. Burrell, vice-chairman, The Ohio Oil Company, Bridgeport, Ill.

K. C. Cottingham, vice-chairman, The Ohio Fuel Gas Company, Columbus, Ohio.

J. V. Goodman, vice-chairman, Equitable Gas Company, Pittsburgh.

Walter L. McCloy, Jr., Standard Oil Company of Ohio, Cleveland, Ohio.

J. E. Schaefer, vice-chairman, The East Oil Gas Corporation, Cleveland.

W. E. Schoeneck, vice-chairman, The Ohio Oil Company, Grand Rapids, Mich.

J. F. Swain, vice-chairman, Huntley and Huntley, Pittsburgh.

S. M. Vockel, vice-chairman, Waverly Oil Works Company, Pittsburgh.

Paul J. Kesel, secretary-treasurer, Carnegie Natural Gas Company, Pittsburg.

tions of gas recovery, and gave figures indicating the savings in fuel costs and the gain in oil and gas production which can be achieved by a number of operators using such installations.

Rotary and Cable Tool

Bruce R. Miller of The Ohio Oil Company was author of "Deep Rotary Drilling in the Appalachian Region," and pointed out that the adaptation of rotary equipment to drilling there must take into account properly conditioned mud, adequately powered rigs, drill-pipe wear, rock-bit footage and well control. He explained the effect of day-work contracts on contractors, as partly removing the incentive to improved performance, and concluded by saying that rotary drilling has provided many desirable benefits but these complications as well as the high freight rates for moving rigs and supplies have made rotary drilling costs high.

Harold W. Haupt, vice-president of Acme Drilling Company, Greenburg, Pennsylvania, presented a paper on "Deep Cable-Tool Drilling in the Appalachian Region," which covered the practices, success and cost of deep cable-tool drilling in the area, based on actual experiences.

E. T. Heck of New York State Science Service, Albany, N. Y., read a paper on "Future Possibilities for Oil and Gas in New York State, with Comments on the Entire Appalachian Basin." He divided the state, for purposes of description, into three districts and discussed the general geology and possibility of finding additional oil and gas in each. He also talked briefly on the productive belts of other parts of the Appalachian area and pointed out some that were favorable for prospecting.

Paul Walton of Industrial Gas Corporation, Newark, N. J., was author of a paper on "Safety in the Oil and Gas Fields," which discussed the types of men who cause accidents as well as the accidents caused by these men. He suggested ways to eliminate accidents, citing as an example a company which has successfully dealt with the problem.

J. Gordon Burch of Burch Agate Torpedo, Borger, Texas, was author of a paper on "Restoration by Resurfacing Pay Sections with Explosive-Propelled Marbles," a study of conditions affecting the daily capacities and ultimate production of oil and gas wells. He discussed the nature and depth of congestion, size and irregularities of the bore, and results and costs of the usual reconditioning techniques, and then discussed the results, relative cost, and place in corrective treatment of all wells of the Marble Torpedo.

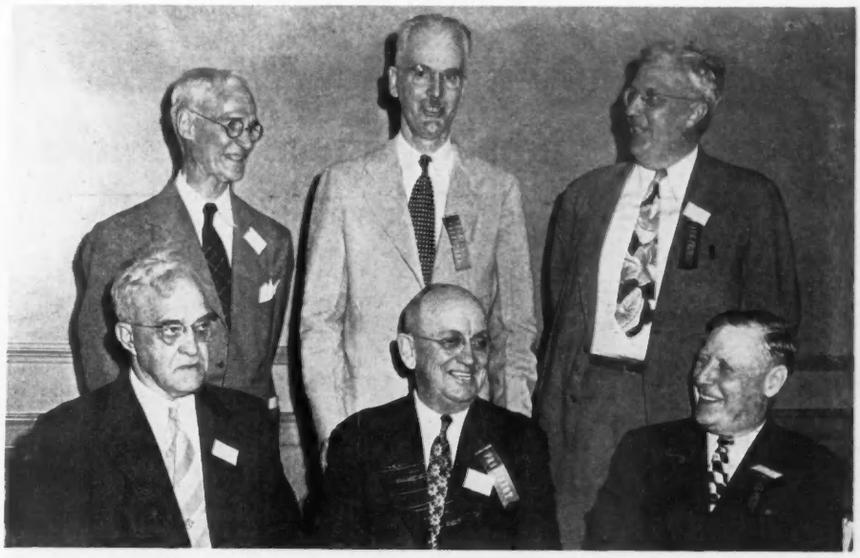
Bridwell Buys Leases

The Bridwell Oil Company, Wichita Falls, Texas, increased its leaseholds in the new South Walters area of Cotton County, Oklahoma at the Kiowa Indian Agency oil and gas lease sale at Anadarko, Oklahoma recently.

Eighty-seven tracts out of 232 were sold; two bids were rejected while two bids were held up pending approval. Feature of the sale was several concentrations purchased in Caddo County.

Bridwell paid $76.25 an acre for lease on NW 25-3s-10w, near its discovery well in the new field; and $52.25 an acre for the SE and NE 26, $31.30 an acre for SE of 25, and $28.80 an acre for SW of 25.

Kentucky Oil and Gas Officers



Members of the Kentucky Oil and Gas Association at their annual mid-year meeting at Lexington June 7 and 8 re-elected all officers. Shown above, left to right, seated: P. G. VanGilst, Ashland, vice president; M. A. Arvin, Owensboro, president, and Karl Z. Wilking, Owensboro, vice president. Standing: E. L. McDonald, Lexington, secretary; J. C. Preston, Owensboro, executive secretary-treasurer, and M. G. Powers, Huntington, W. V., vice president.

Hardey and Marshall Attack Federal Control at Meeting

An attack on continued federal controls on a wartime basis even after peace has come was made at the annual meeting in Lexington of the Kentucky Oil and Gas Association by Maj. B. A. Hardey, Shreveport, La., president of the Independent Petroleum Association of America, and by J. Howard Marshall, Ashland, Ky., president of Ashland Oil and Refining Company.

Hardey charged that no earthly excuse remained for such controls, asserting that the oil industry was able to take care of its own business and should be allowed to face the future without the handicap of outside interference.

Marshall said the small producers and the independents are being stifled by wage and hour regulations, by price controls and by competition from foreign fields.

But Marshall gave the Kentucky delegates assurance that "we have enough energy and vitality to face our problems and solve them so that the Kentucky oil industry won't be left at the post."

H. M. McClure, Alma, Mich., president of the National Stripper Well Association, deplored the low price being received for crude oil. "Let's do whatever it takes to get the price of oil up to a fair level," he challenged. "A fair price would be five cents a gallon, a profit of one cent a gallon, figuring a production cost of four cents."

McClure also urged passage of conservation laws in oil-producing states which have no such protection.

The Kentucky association adopted without dissent a resolution endorsing the permanent plan of oil conservation payments for stripper wells, as approved by the National Stripper Well Association.

Daniel J. Jones, Kentucky state geologist, presented a paper on "Natural Gas Reserves of Eastern Kentucky," and J. L. Rogers, of Carter Oil Company, one on "Casing Cementing Practices in the Eastern Interior Coal Basin."

Association officers were re-elected as follows:

M. A. Arvin, Owensboro, president; P. C. VanGilst, Ashland, vice president; M. G. Powers, Huntington, W. Va., vice president; Karl Z. Wilking, Owensboro, vice president; E. L. McDonald, Lexington, secretary, and J. C. Preston, Owensboro, executive secretary-treasurer.

More than 200 Kentucky oil and gas men attended.

Domestic Barite

The United States now is able to produce domestically all the barite needed for oil well drilling and other industrial purposes, it was reported last week by Director R. R. Sayers of the Bureau of Mines.

Originally produced a century ago as an adulterant in white lead paints, barite today occupies an important legitimate place as a weighing material in drilling and in a number of other industries. Mined in Arkansas, Missouri, Georgia, Tennessee, California and Nevada principally, the bulk of the production in the Pacific and Central areas goes to the oil industry.

Louisiana Taxes

Tax income to the State of Louisiana through the month of May, 1946, totalled $93,252,000. The tax on the gathering of natural gas was up 2.5 percent for the first 11 months of the fiscal year, totalling $2,175,000. The tax on lubricating oil was up 8 percent to $1,002,000, and the severance tax on crude oil was up 2.28 percent to $16,382,000.

Domestic Liaison Service Will Make Available German-Japanese Techniques

To make available to American business, colleges, etc., the experiences of German and Japanese scientists and technicians in various fields, the Air Materiel Command of the Army Air Forces has established a domestic liaison service in its technical intelligence organization. The purpose is dissemination of documents, reports and descriptive papers on enemy developments, including laboratory data, plant processes, patent applications and utilization. A large amount of data on natural and synthetic petroleum research is included in the material, which is to be made available to all interested companies or groups.

Right now the liaison service is anxious to determine the amount of interest the petroleum industry has in such information, and requests all those who may be interested to communicate with it. This will permit the Army to determine how many copies of petroleum reports and documents should be printed, and whether the work on petroleum should be continued.

In addition to copies of actual documents and reports, the following material is available:

Available Material Listed

1. A card index system consisting of short summaries of the contents of documents and reports. About 20,000 cards have been completed, and when all documents have been processed it is contemplated the index will consist of at least 600,000 cards. The card index system covers all subjects and is not available on any specific topic, such as petroleum. The card index system is being made available to all who will agree to keep it up to date. It is thought advisable that only central agencies, such as associations, colleges, and very large research groups with library services should undertake this work.

2. Bibliographies containing reproductions of cards concerning definite or specific lines of interest, such as petroleum and synthetic lubricants. These bibliographies probably contain sufficient coverage for most industrial facilities.

3. A complete dictionary of German technical terms.

All correspondence concerning requests for the card index system, the bibliographies, or the dictionary mentioned above should be addressed to: Commanding General, Army Air Forces Materiel Command. Wright Field, Dayton, Ohio, Attention: TSEPR.

In addition to various documentary material, many items of captured equipment are available to American industry for testing and evaluation. Complete catalogues of this equipment are available. All requests for these catalogues should be addressed to: Lt. John F. Zinski, Liaison Officer T-2 Intelligence, AAF PFO, 8th Service Command Bldg., Dallas, Texas.

National Oil Company in Czechoslovakia Is Formed

The first national oil company in Czechoslovakia, the National Mineral Oil Refineries, with headquarters in Pardubice, Bohemia, according to an official message from Prague, will consist of the equipment and property of the following nationalized companies: Privoz Mineral Oil Works, Moravaka Ostrava; Apollonaphtha, Prague; Fanto A.S.; Fanto Works; Fama Company; Color Chemical Company; Astranaft, and the Mineral Oil Producing Company, Moravaka Ostrava.

The new concern will be under the control of the Central Organization for the Chemical Industry.

New Colombia Field Likely

The Texas Petroleum Company apparently is opening a new oil field in the Upper Magdalena Valley, Colombia, at its Valazquez 1.

A 13-minute drill stem test of 20 feet of saturated sand at 7254-74 feet recovered 15 stands of 35-gravity oil. At last report the test was coring deeper below 7284 feet. However, the company has reached a decision to set casing and the hole probably will not be carried much deeper.

This wildcat discovery is located in the Department of Boyaca, just east of the Magdalena River and 150 kilometers (about 93 miles) upstream from Tropical Oil Company's El Centro concession and Shell's Casabe area.

The pay itself has not been definitely defined but it is very similar to a sand known as the Guaduas sand, a member of the Tertiary. However, it is possible that it may prove to be part of the Upper Cretaceous or in the transition period at the top of the Cretaceous. Other production in the Magdalena Valley region is from the Miocene, Oligocene and Eocene. Elsewhere in Venezuela and Colombia the Cretaceous has been found to be very prolific.

This wildcat was drilled on acreage purchased in fee by the company several years ago and courts tests have established the ownership of the oil as being vested in The Texas Petroleum Company. If productive, the well will be the first on privately-owned property in Colombia.

April Imports Show Slight Gain Over March Figures

American petroleum imports totaled 10,165,000 barrels, a slight gain over the 9,932,000 barrels recorded in the preceding month, according to Department of Commerce figures.

Crude imports moved sharply upward during the month, from 6,578,000 barrels in March to 7,867,000 barrels, while refined products declined from 3,354,000 to 2,298,000 barrels. Refined receipts included 1,883,000 barrels of residual fuel oil, against 2,736,000 barrels in March; 251,000 barrels of distillate fuel oil against 527,000 barrels; 109,000 barrels of asphalt against 55,000 barrels, and 55,000 barrels of unfinished oils against 36,000 barrels.

The over-all increase in imports was due to heavier receipts from Venezuela, 6,714,000 barrels against 5,797,000 barrels; Colombia, 926,000 barrels against 720,000 barrels, and Mexico, 501,000 barrels against 344,000 barrels, which more than offset a decline from Netherlands West Indies, 2,024,000 barrels against 3,064,000 barrels.

Intensive Geophysical Work Being Planned in Australia

Senator William P. Ashley, Minister for Supply and Shipping, has announced that substantial sums of money are being made available for a nationwide search for oil in Australia and Territories.

The government has obtained the services of technical men, including H. Temple Watts, oil technologist, to aid in this search. The new work will be based on latest geophysical and geological survey methods and the purchase of the latest geophysical equipment has been approved.

The Commonwealth has decided to discontinue its policy of actively searching for oil and instead would concentrate on regional geological and geophysical surveys.

The results of the governments work would be published in maps to encourage private companies to concentrate their resources on the most promising localities. However, the government would continue to supervise company activities in the interest of national conservation.

The first cooperative search for oil between Commonwealth and State governments is now underway in the Kimberley area of Western Australia.

Firm Making Arrangements For Activity in New Guinea

Papuan Apinaipi Petroleum Company is making financial arrangements to renew wildcat drilling in New Guinea. The company holds prospecting license in that area and had a test drilling when the war started. Representatives of the Australian government, which had subsidized the efforts of the company prior to the war, are inspecting the property to ascertain the prospects of further operations.

1945 Production of Europe's Big Four Is Estimated at 210 Million Barrels

Crude petroleum production of Europe's four leading oil countries—Russia, Roumania, Austria and Hungary—was close to 30 million metric tons (approximately 210 million barrels) in 1945 and was about 1,300,000 tons (9,100,000 barrels) greater than in 1944, it was estimated by the Commerce Department's Office of international trade.

Although Russian production generally has been estimated at considerably above 31 million tons in the last few years, the office accepted the more conservative British trade estimate of 25 million tons (175,000,000 barrels) in 1945. Roumania's 1945 production was placed at 4,640,000 tons (32,480,000 barrels), while Austrian output was estimated at possibly as low as 550,000 tons (3,850,000 barrels), and Hungarian at 650,000 tons (4,550,000 barrels).

The objective of the Soviet Union's current five-year plan is to reach an annual output of 35,500,000 metric tons (248,500,000 barrels) of oil by 1950, with an ultimate target of 60 million tons (420 million barrels) a year. No production figures for recent years are available in this country, but Premier Stalin recently disclosed that 1940 production was 31 million tons.

"The tendency," the OIT said, "has been to credit Russia with an annual production considerably in excess of 31 million tons (217 million barrels) in the last several years. Recent reports from the Soviet Union, however, state that 5000 wells with an annual yield of 5 million tons (35 million barrels) were destroyed by the Russians as part of the scorched earth policy, or by the Germans. It will take years to repair such damage.

"In the Baku area, which produced almost three-fourths of Russia's oil, shortages of equipment and supplies cut production for long periods. In view of these factors and the limited goal set for 1950, it appears that production dropped sharply during the war. British trade estimates set USSR production at 23 million tons (161 million barrels) in 1944 and 25 million tons (175 million barrels) in 1945."

Russian Production Rising

According to the Russian press, the OIT continued, output is expected to rise considerably this year. Refineries are resuming prewar standards for petroleum products, and two large, well-equipped refineries have been opened in Eastern Russia. Drilling doubled in 1945 over 1944, and particular attention was paid to efficient operation and more thorough exploitation of old fields.

"One of the major achievements of the Soviet oil industry in 1945 was reported to be the confirmation of oil fields in the Devonian strata near Kuikyshov, in Tuimazy, Severokamsk on the Kama River, and Shugurovo in the Tater ASSR," it was stated. "Intensive development of these areas is expected in the next few years. Many new wells have been opened in the Baku region and a new oilfield is in operation at Buzovny."

The world's sixth largest producing country before the war, Roumania last year produced 4,640,000 tons (32,480,000 barrels) as compared with 3,507,000 tons (24,549,000 barrels) in 1944, the report showed. About two-thirds the 1945 output was exported to Russia. Production this year is expected to be about 4,300,000 tons (30,100,000 barrels), as compared with a 1941-43 average of 5,600,000 tons (39,200,000 barrels).

Due to shortages of equipment and transportation, drilling last year was only half the prewar average. There was little exploration, no new discoveries and no important extensions of existing fields. Refining capacity, more than sufficient to handle the lower crude output, was rebuilt in 1945, with straight run appartus being repaired first but with sufficient cracking capacity by the end of the year to handle production.

Austria Moves Forward

Production in Austria started only shortly before the war, but by 1944 the country was Europe's third largest producer with an output of 1,210,000 tons (8,470,000 barrels), the department reported. Under the impact of fighting and bombing, production declined sharply in 1945. The 1946 production is expected to about equal that for 1944.

Oil deposits are being investigated in the environs of Vienna, in the vicinity of Graz, Syria, and the Alps foothills.

Under German domination, Hungarian production increased from less than 250,000 tons (1,750,000 barrels) in 1940 to more than 800,000 tons (5,600,000 barrels) a year in 1943 and 1944, making the country the fourth largest European producer. Estimated 1945 production was 650,000 tons (4,550,000 barrels), a quantity well in excess of the country's normal requirements, leading to the presumption that considerable of the output is going to the Soviet Union.

Wells, oilfield installations and pipe lines from the fields to the principal refineries were only slightly damaged during the fighting, the OIT reported. The refineries suffered from air attack, but all except one are in operation. Recent reports indicate that Hungarian oil production will be nationalized.

Australian Plant Begun

Work has started on the Bitumen & Oil Refineries (Australia) Ltd., plant at Bunnerong Sydney, Australia. Cost of the plant will exceed 600,000 Australian pounds. Twenty men between the ages of 25 and 35 will receive six months technical training in the United States after which they will fill key positions in the refinery.

International Petroleum Grant Studied by Peru

Efforts of International Petroleum Corporation to obtain a concession for exploration of 6,500,000 acres in the Sechura Desert have resulted in enactment of a new law in Peru which paves the way for definite negotiation of such concessions but at the same time places them on the auction block.

An important provision of the new law, according to a report received at the Department of Commerce, is that all companies dealing with the state shall formally acknowledge in their contracts that they will be subject to the sovereignity of the state in all respects.

Even more important to companies seeking concessions, however, is a provision that after the terms of a contract have been determined and published the agreement will be suspended for at least 60 days to give other companies an opportunity to submit better offers.

New York last week had reports that the lower Peruvian house had approved a bill giving International the Schura Desert concession, the company being allowed to retain 30 percent of the acreage for future exploitation in exchange for more than $5 million cash advance.

Haight Succeeds Kalb With Creole Petroleum

John L. Kalb has resigned as vice president and director of the Creole Petroleum Corporation to accept a new post with International Petroleum Company, Ltd., an affiliate of the Standard Oil Company (New Jersey).

The Creole board named Harold W. Haight, production manager of the company in Venezuela, a vice president and director to fill the vacancy left by Kalb.

Haight, who has been production manager for Creole in Venezuela began his career in the oil industry in Mexico in May, 1927 as a torsion balance helper with the Cia. Transcontinental de Petroleo, S. A., an affiliate of Standard Oil Company (New Jersey). He later served as geologist with the same company and was transferred to Standard Oil Company of Egypt as field superintendent in 1937. A year later he was made manager and chief geologist of that company. In 1945, Haight joined Creole in Venezuela.

Deeper Sand Is Sought In Chile's Spring Hill 2

Corporacion de Fomento de la Produccion, Chilean government company, is deepening its Spring Hill 2, second test in the Spring Hill field on Isla Grande of Tierra Del Fuego, 6 miles from the north end of the Straits of Magellan.

Although the test was dry in the discovery sand of the first test at 7419-38 feet, the test is now reported to be drilling near 8475 feet in search for a deeper sand.

Exportation of Texas Gas Into Mexico Authorized; Company Seeks Line Permit

Exportation to Mexico by Reynosa Pipe Line Company of up to 50 million cubic feet of natural gas daily was authorized by the Federal Power Commission last week. The authorization was made contingent upon the filing of an application by the company for a certificate of public convenience and necessity for construction of approximately 30 miles of pipe line from gas fields in Hidalgo County, Texas, to the Mexican border. The gas is to be sold to Gas Industrial de Monterrey, S.A.

Officials of the Reynosa Company said that an application to construct the 30 miles of line would be filed immediately. The line would run from near Weslaco to the international bridge at Hidalgo-Reynosa where it will be joined with a 140-mile Mexican line to Monterrey. Gas Industrial de Monterrey will construct the Mexican line.

The line will carry gas from five wells in the La Blanca field, three wells in the South Weslaco pool, and one well in the Santa Maria field near Mercedes. The gas will be taken from reserves owned by the La Gloria Corporation.

A presidential permit has been issued to the Monterrey firm to authorize the construction, operation, maintenance and connection at the international border of facilities necessary for transportation of the gas. The firm will purchase the gas at the border under a 10-year contract and pipe it to Monterrey for use by a limited number of industrial consumers who are subscribers to the company's stock.

Two members of the Texas Railroad Commission had vigorously opposed the granting of the permit. Commission Chairman Olin Culberson and Commissioner Beauford Jester had opposed the permit on the ground, among others, that Texas natural gas was needed in Texas, and that there were adequate reserves for Mexican industries in Mexico. Commissioner Ernest O. Thompson disagreed with his colleagues and favored the gas exports. Last year FPC denied Reynosa the right to export gas.

Under the decision, Reynosa must be prepared at all times to give preferential service to persons and municipalities in the United States over that to the Monterrey industries.

FPC Commissioner Nelson Lee Smith wrote a separate opinion but concurred with the majority in the decision. Commissioner Claude L. Draper filed an opinion concurring in part and dissenting in part.

The FPC also authorized United Gas Pipe Line Company to continue the exportation of natural gas to Mexico under a revised contract with the Compania Mexicana de Gas, S.A., in a volume not exceeding 31,275,000 cubic feet daily, the present capacity of the Mexican company's pipe line. This also is for the supply of Monterrey consumers.

Texas Project Would Add To Michigan Line Capacity

Panhandle Eastern Pipe Line Company has been authorized by the Federal Power Commission to undertake a $6,216,000 project designed to increase the capacity of its Texas-Michigan transmission system from 383,000,000 to 393,000,000 cubic feet daily.

The project includes the construction of 50 miles of 18-inch trunk line from the vicinity of the Shamrock Oil and Gas Company's natural gas processing plant in Moore County, Texas, to the Hansford compressor station, and 24 miles of 26-inch line from the Tuscola compressor station paralleling existing loop lines; a new "Sunray compressor station" in Moore County, including a dehydration plant, and new compressor units in several existing stations.

Tulsa Firm to Construct Part Of Texas-California Gas Line

Midwestern Engineers of Tulsa has been awarded a contract for construction of 250 miles of 26-inch natural gas line on the western portion of a 951-mile pipe line from West Texas to California. The Parkhill Truck Company, owned by Midwestern, was awarded the contract for hauling and stringing pipe for the whole line.

The Federal Power Commission authorized construction of the line, a $70 million project which will include about 1200 miles of inter-connected pipe lines, compressor stations, gas purification and dehydration plants, and other facilities.

FPC to Hear Application For United Gas Projects

The FPC consolidated and set for hearing June 25 three applications of United Gas Pipe Line Company involving, among other things, the construction of 16.6 miles of 12¾-inch transmission line from a proposed dehydration plant in the Hayes field to the Iowa Compressor station, Louisiana, at a cost of $442,128; 10.3 miles of 12¾-inch line from the Baxterville field to the Boagalusa transmission line, Mississippi, to cost $281,696; 13.6 miles of 10¾-inch from a proposed dehydration plant in the Gwinville field to the Benton Junction-Mobile main line, Mississippi to cost $263,018, and an additional compressor unit in the Hattiesburg compressor station, Perry County, Mississippi at a cost of $211,440.

Plant Completed

Northern Natural Gas Company's new natural gasoline plant near Sublette, in Haskell County, Kansas, has been completed and is in operation. The plant is processing gas from the Hugoton field and recovering between 25,000 and 40,000 gallons of gasoline per day.

Continental, Phillips to Hike West Edmond Gas Facilities

Expenditures of $2,700,000 for new construction and expansion of pipe line and plant facilities to increase natural gas facilities in the four-county West Edmond field of Oklahoma, have been approved by Phillips Petroleum Company and Continental Oil Company.

The expansions will be made at the gasoline and compressor plant jointly-owned by the two companies in the old Edmond field of Oklahoma County, while gathering line extensions will be in the three-year-old West Edmond Hunton lime pool of Oklahoma, Logan, Canadian and Kingfisher counties.

On completion of the new facilities, waste of natural gas at the compressor plant will be halted. At present the plant is selling transmission lines 30 to 35 million cubic feet of gas a day. New facilities will permit an increase of 20 million cubic feet daily.

Some of the equipment has been delivered to the plant, while the remainder will be received in 30 to 90 days.

The Peppers Refining Company has had orders placed for several months for equipment to increase capacity of its plant at West Edmond to around 35 million cubic feet of gas daily. The plant is now selling 10 to 12 million cubic feet daily.

Stanolind Plans Extension of West Texas-Oklahoma Line

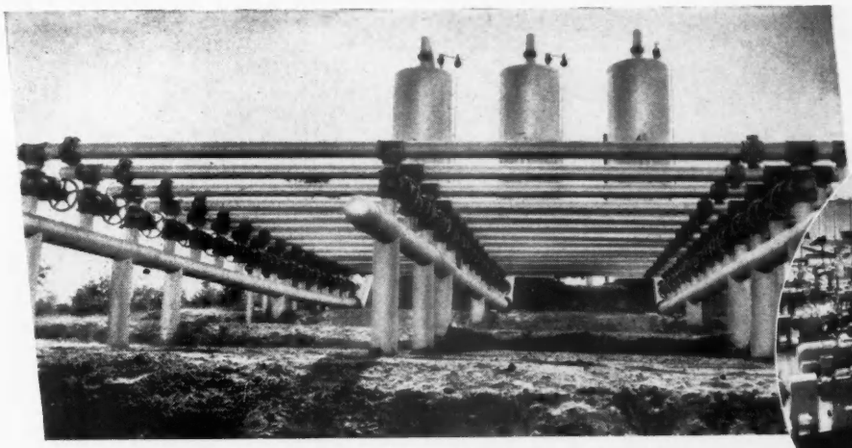
Stanolind Pipe Line Company has authorized the construction of a ten-mile, four-inch extension line from its West Texas-Oklahoma 16-inch trunk line to connect the Anton eight-well pool, centering upon the Lamb-Hale County, Texas, line. Stanolind Oil & Gas Company recently extended the Anton area 3⅝ miles east into Hale County, establishing the highest structural position, and development of intermediate acreage is pending.

Wichita County Gathering Lines Purchased by Bell

The Bell Oil & Gas Company recently purchased the gathering system of Sinclair Refining Company in the Clara and Sunshine Hill areas of Wichita County, North Texas, and is planning extension of its system there. Objective is to increase the crude runs to its refinery at Grandfield, Oklahoma. At this time the Sinclair and Bell Systems are being linked.

Johnson Succeeds Butler As Haynesville Unit Head

H. B. Johnson has been named general manager of the Haynesville (La.) Operators Committee. General superintendent of operations of the Haynesville unitized field since May 1, 1944, Johnson succeeds J. R. Butler, who resigned effective June 1, 1946, to become vice president and general manager of The Old Ocean Oil Company, which company recently purchased the interests of J. S. Abercrombie Company.



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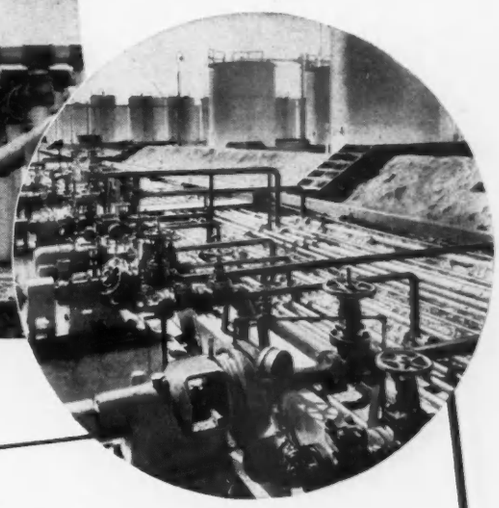

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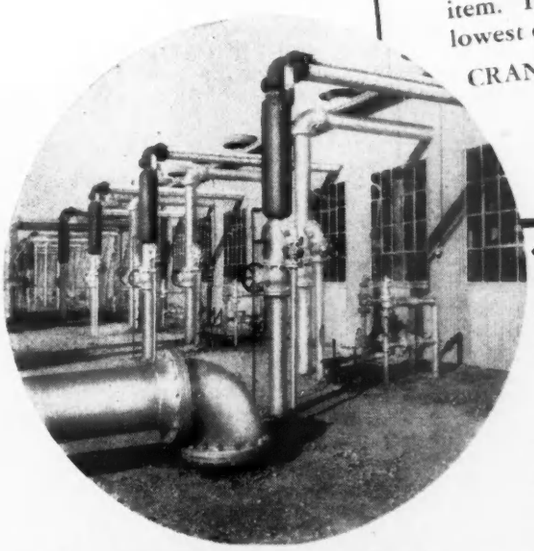
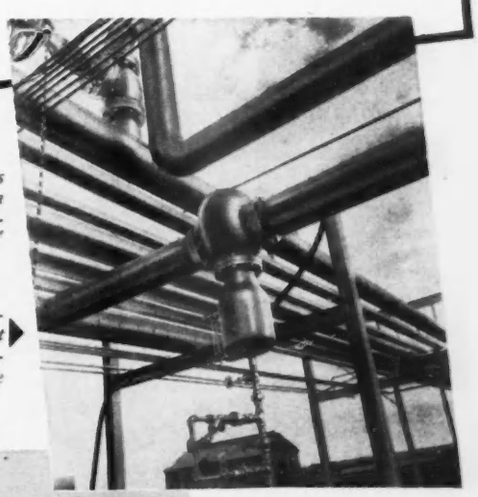


DISTILLATE RECOVERY — *Lines from compressors to distillation equipment, with Crane Standard Iron Body Gate Valves and welding-neck flanges.*



RECYCLING PLANT—*Steam piping showing Crane 125-lb. Cast Iron Drip Pocket and chain-operated Crane Steel Globe Valve.*

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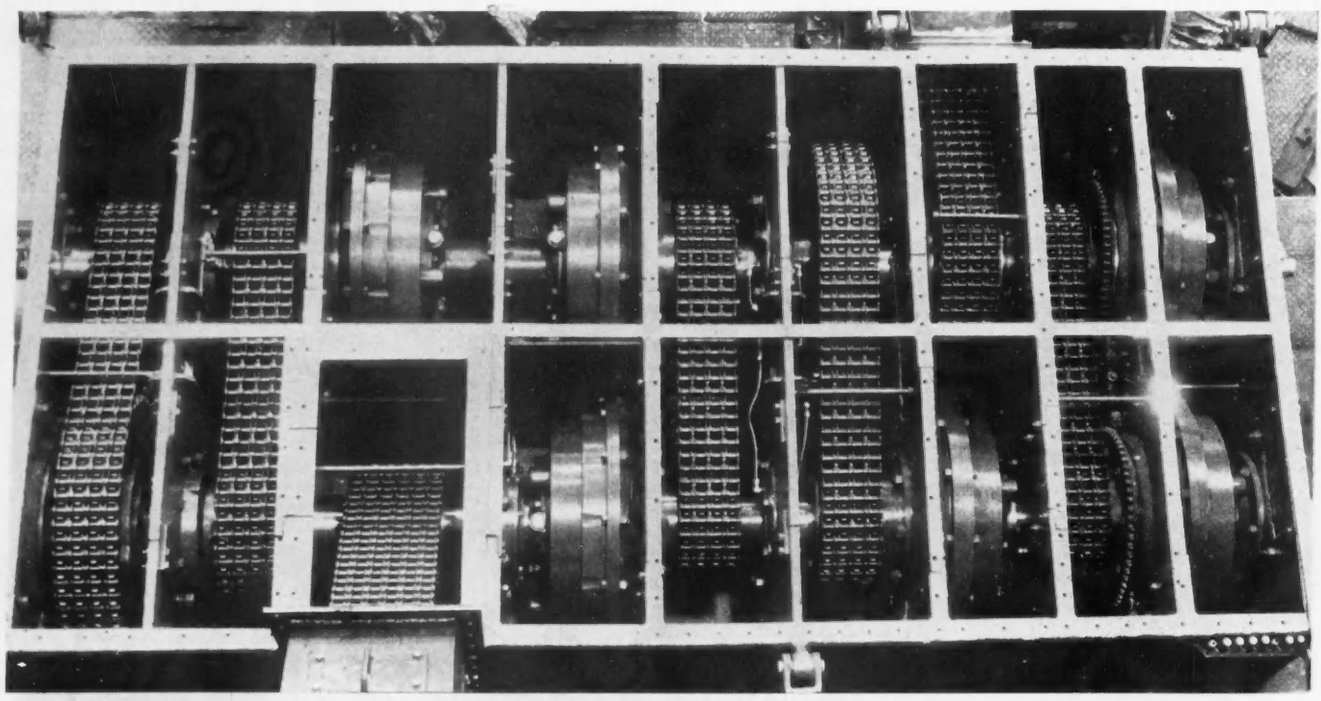
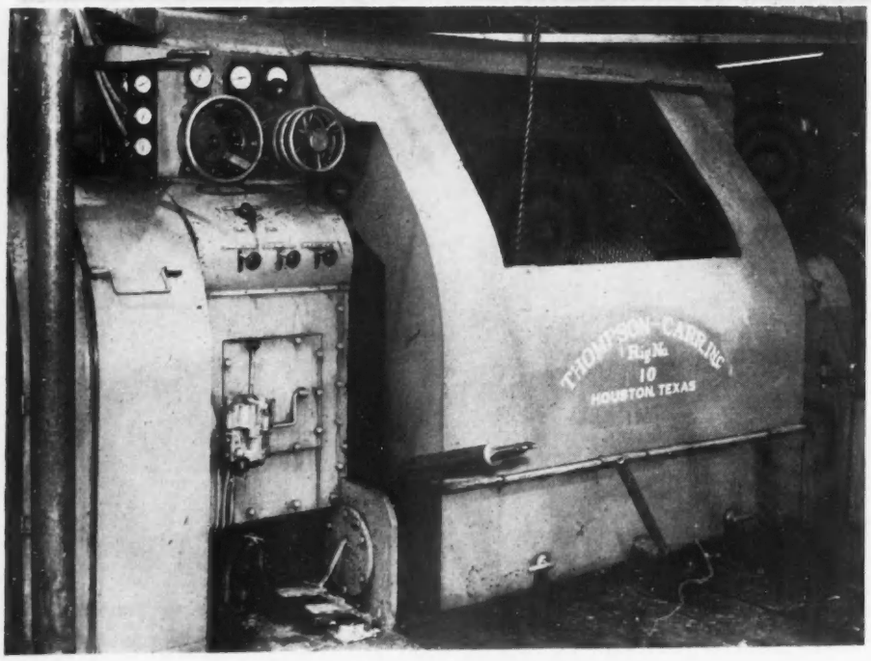


Photographs courtesy of Republic Supply Company

Compounding Unit and Transmission Feature

New Power Rig

Above: An open view of the power transmission unit as seen from the draw works. The quad chain in upper right of picture is the power take-off from the compounding unit furnishing the transmission unit with variable power. The six-chain drive near the lower left of picture is the draw works drive from the power transmission unit. The box-type housing is of welded plate steel construction and has separate oil-tight compartments for the friction clutches. The shafts are of alloy steel and are mounted in self-aligning roller bearings. Each of the seven clutches, six of which may be seen in the above photograph, are air-operated friction disc clutches, and are actuated by air pressure on the friction plates. Quadruple riveted type chain is used for all transmission drives.



Left: The draw works, weighing 52,000 pounds, has a spool 30 inches in diameter and 46½ inches long. At the left are the pneumatic controls which are the nerves of the rig. The control wheel at left is for speed selection, while the three small hand wheels at the right are throttle controls for each engine. These may be operated together or independently. Below these hand wheels are the engine clutch controls which actuate the air-operated disc clutches in the compounding unit, where any or all engines may be engaged or disengaged. Near the floor by the brake are the rotary clutch pedal (inside) and the drum clutch pedal. Below the engine clutch controls is a three-way valve which engages or disengages either or both the mud pumps. The draw works is equipped with a double hydromatic brake, and has a spinning line cathead on the driller's side and an automatic brakeout cathead on the opposite side. A sand reel may be mounted on top of the draw works if desired. On a recent well, 9100 feet of 4½-inch drill pipe with fifteen 6¾-inch drill collars were pulled in the fifth speed, leaving four lower speeds in reserve.

By J. E. KASTROP, Staff Writer

A UNITIZED power compounding unit and specially designed power transmission are features of particular interest in two new, large, power rigs being operated by Thompson-Carr, Inc.

By unitizing the power compounding assembly and making it a separate part of the rig, it was possible to design a unit which would insure proper alignment of power drives, provide wide range of operation, and permit rigid placement of specially constructed, air-operated, disc clutches. Through this arrangement, one or all three of the 335-horsepower engines of the unit may be compounded in driving either the draw works or the mud pumps, or both. The rig is equipped with two power-driven, 7¼ x 12-inch triplex slush pumps, either of which may be operated separately, or through the compounding unit, may be operated simultaneously. Such a feature is of particular importance to the driller where flexibility of power is required. As the depth increases, the driller may compound all the gas-gasoline engines on the pumps, and through the transmission, adjust the rotary speed to the desired revolution per minute. The changeover from one engine to two or three, or change in operating speeds of either the pumps or the rotary table is easy and simple by means of air-operated controls located at the driller's position.

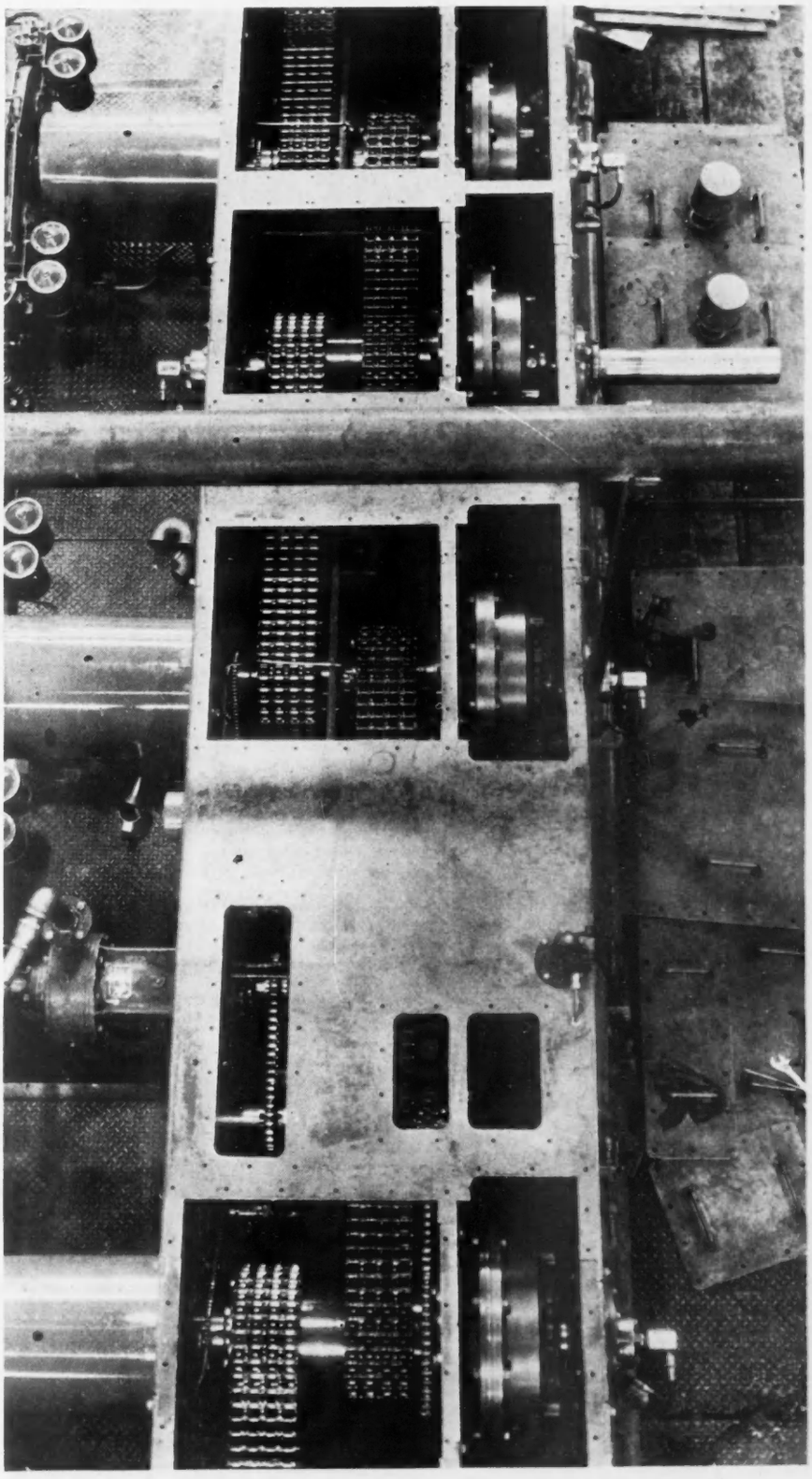
Nine Speeds Forward or Reverse

The pneumatic-controlled transmission which drives the draw works and the rotary makes it possible to obtain nine speeds forward and nine speeds reverse on either the rotary or the line drum. Such a combination is particularly desirable where pumping speeds must be maintained at a high rate and table speeds relatively low, when both are powered from the same engine source. When coming out of the hole with a long string of drill pipe, it is a simple matter for the driller to shift from one speed to another without delay, and at the same time obtain all the power necessary for the job. As more and more pipe is broken out, the drum speed can be increased, thus introducing the time-saving factor in making round trips.

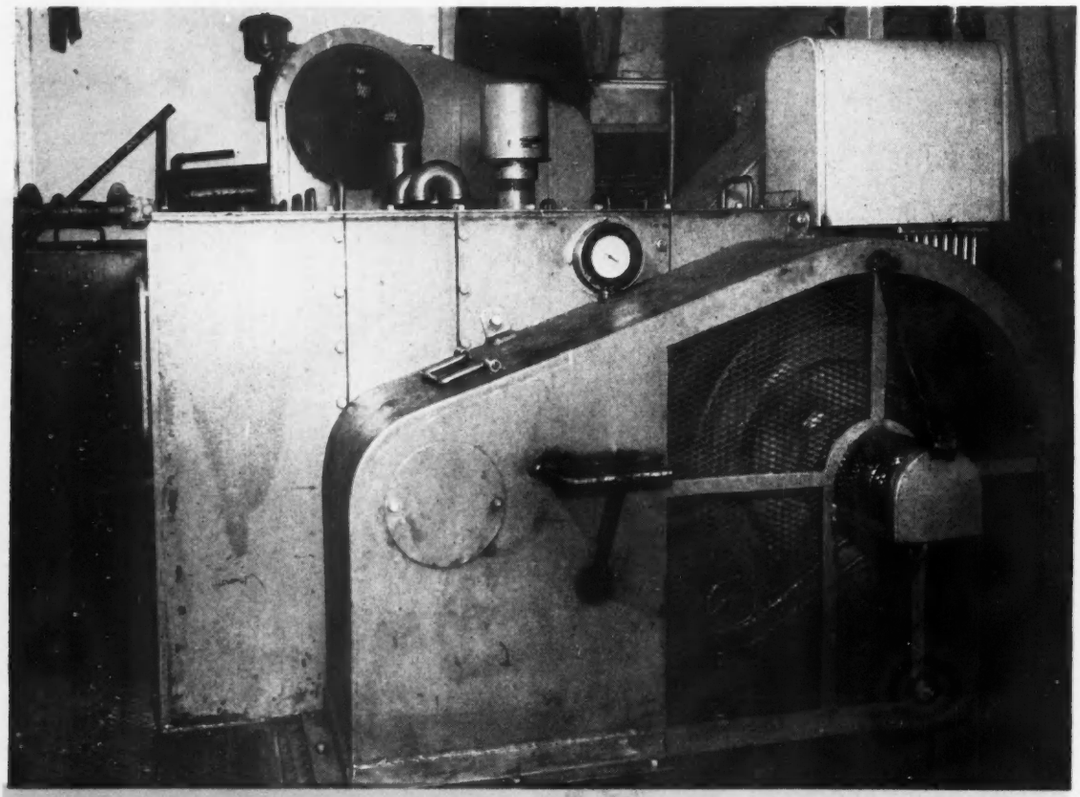
Among Heaviest Power Rigs in Operation

The combined weight of the rig is a quarter of a million pounds, and is considered among the heaviest power rigs in the business. Slightly more than a thousand horsepower are combined in the three, gas-gasoline, V-12 cylinder engines. Six railroad flat cars were required to ship the rig to its present location 30 miles north of Odessa, Texas, where during more than six months of continuous operation, shut down time due to rig failures has been zero. Thompson-Carr, Inc., is operating two of these new power rigs in the West Texas area.

Photographs on this and the following pages illustrate the several salient features of the rig.

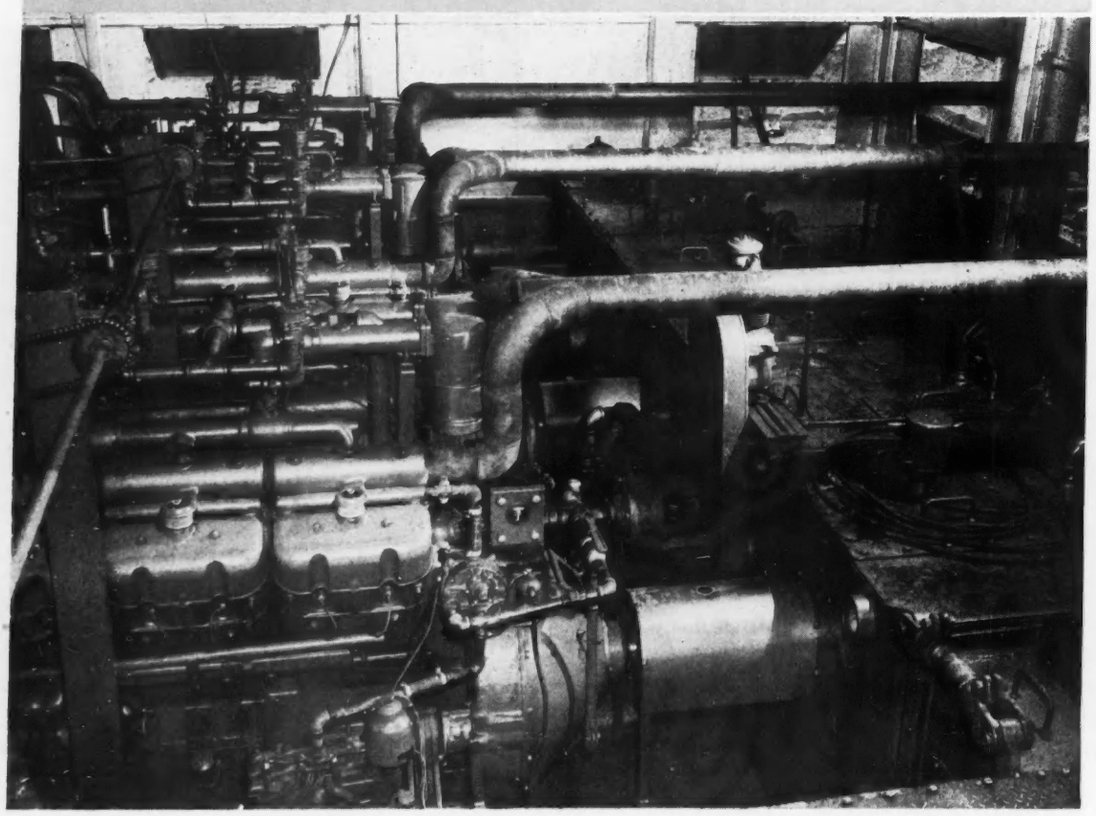


The cover plates have been removed from the power compounding unit, and this view shows the arrangement of engines and shafts as seen from the transmission unit. Each engine is tied into the compounding unit through a flexible coupling over which is mounted a guard as shown above. Inside the compounding unit are air-operated, friction disc clutches for each power shaft which may be engaged or disengaged at will by air controls at the driller's position. The box-type housing is of welded steel plate construction, mounting the shafts in self-aligning roller bearings, while the clutch sprockets are mounted on tapered roller bearings. The shaft extension on the right hand side of the unit near the upper right of the photograph is the power shaft for the mud pump sheave. A similar shaft is located on the opposite side of the unit nearer the far end and not shown in the picture. Lubrication on all roller bearings and chains is pressure sprayed.



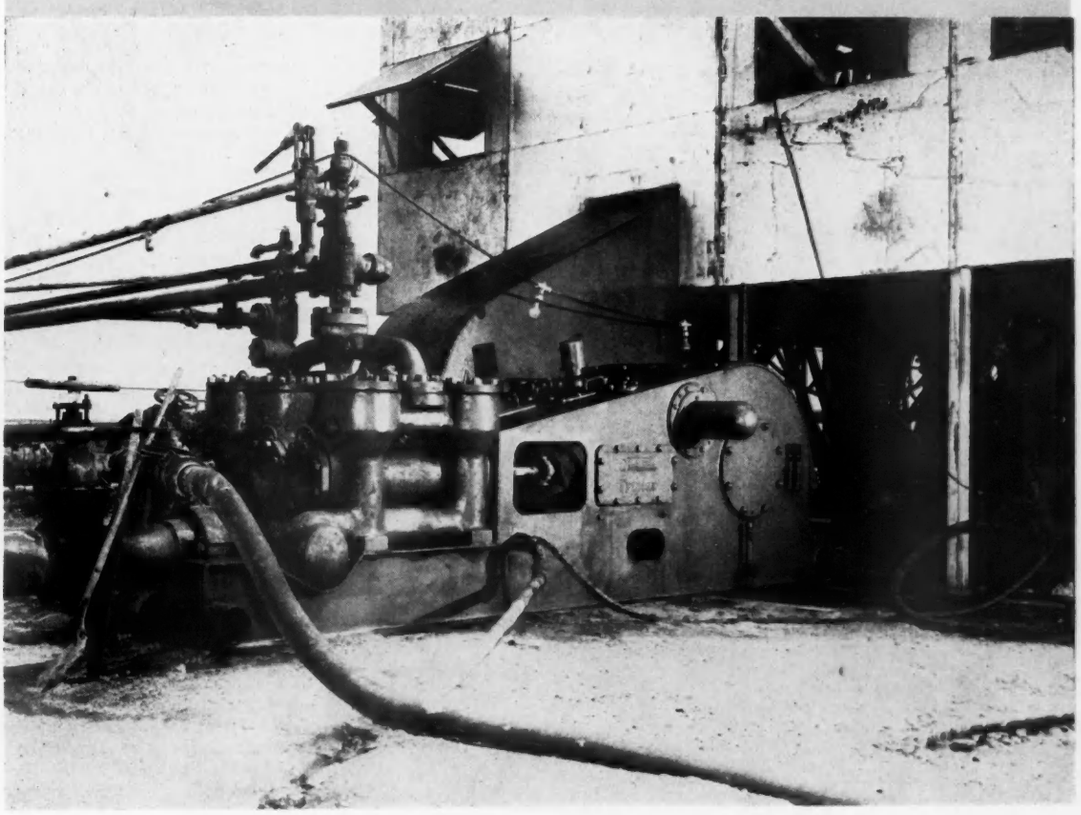
Above: A side view of the power transmission unit which is located directly behind the draw works, and connected to the draw works by means of riveted hex-chains, the cover over which may be seen in the upper right of the photograph. One of the large clutches can be seen through the protecting screen at right. There are seven air-operated, disc clutches in the transmission which are geared through two shafts mounted on self-aligning roller bearings. On top of the transmission unit is one of the two air compressors which furnish air pressure needed for the pneumatic control system.

Below: To the rear of the draw works, this view shows the gas-gasoline engines connected through flexible couplings to the power compounding unit. Note the throttle controls in center left, and the chain guard in lower right which covers the quad-chain drive to the power transmission unit. Each engine is equipped with its own clutch in addition to the air-operated disc clutch located within the power compounding unit.



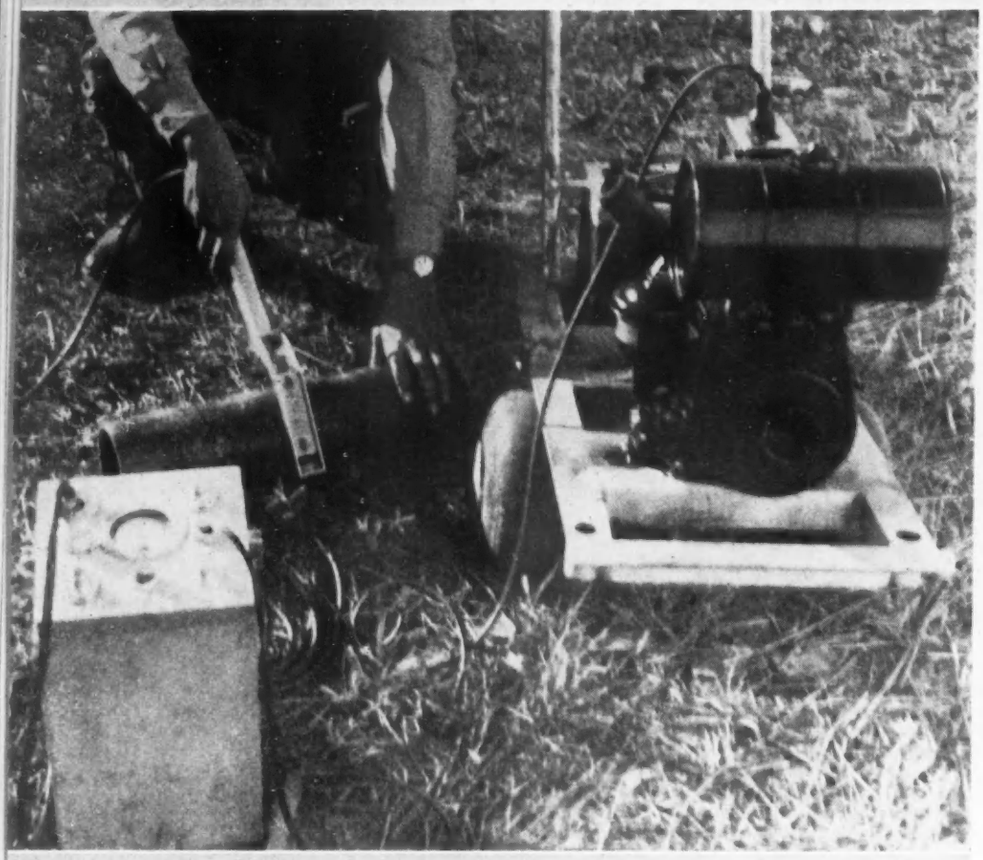
Above: **Belt drive sheave from power shaft for the No. 2 pump. A similar shaft is located on the opposite side of the power compounding unit from which the No. 1 pump is powered. Air lines which carry pressure necessary to actuate the various clutches are shown near the bottom of the compounding unit. The top plates of the unit are furnished with handles and easily accessible bolts which make it a simple matter to remove the covers for inspection and repair.**

Below: **Location of the two mud pumps (the No. 1 pump can barely be seen across the top of the mud exhaust manifold of the No. 2 pump) at the rear of the compounding unit and rig housing, showing the belt drive guard to the 7½-inch x 12-inch triplex slush pump. Both pumps are driven from the compounding unit where their respective drive clutches are located.**



Penetron Detection of Corrosion

By FELIX B. GORDON and PHILIP H. LIPSTATE, JR.
Penetron Service Company, Houston



Above, light and portable equipment used in making Penetron inspections in the field. The three units are the detector head, control box and portable electric generator.

Below, the Penetron field crew consists of the detector head holder and the control box man.

IN THE past few years, operators of high-pressure distillate fields have encountered corrosion on the inside surfaces of producing equipment, in some cases to such an extent that material failure followed. The necessity for detection of the presence of that corrosion is reaching a stage of great importance.

Corrosion has been occurring on both equipment inside the well and equipment on the surface.

Corrosion on the inside surfaces of tubing strings has been a source of concern since a number of strings have dropped as a direct result. The determination of reduction in tubing wall thickness is done by pulling the pipe and making examinations on the surface or by running mechanical calipers while the pipe is still in the well.

Surface equipment has failed from the same cause. Corrosion has been found on the internal surfaces of Christmas trees, flow wings, meter runs and field lines. A generally accepted method of determination of pipe wall reduction is visual examination and calipering. That procedure is quite simple near flanges and unions. Diffficulty is encountered when internal examination is attempted on welded connections, loops, and long field lines. It is necessary then to use the slow, expensive process of cutting into inspection sections for examination and then patching or welding the sections. A fast accurate method of internal corrosion detection by the use of gamma rays has found immediate application in these cases.

The Penetron, an instrument developed by The Texaco Development Corporation, will determine the thickness of materials by the use of penetrating gamma rays. The Penetron will detect the presence of corrosion by measuring the thickness of the remaining pipe wall. Penetron determination of wall thickness has been found superior in many respects to visual inspection. It has been used on high-pressure distillate equipment without shutting in the wells. The presence of gas flowing at high velocity and high pressure introduced negligible error.

The conventional Penetron operates on the principle of measuring back scattered radiation from gamma rays which are directed into the pipe wall. The intensity of back-scattered radiation is proportional to the wall thickness. An auxiliary Penetron method of measurement consists of determining the quantity of absorption of gamma rays which are directed tangentially through a single pipe wall. The amount of absorption is proportional to the wall thickness. In each case, the Penetron measures the average thickness over an area of approximately one square inch. For this reason, it cannot be used to measure the maximum depth of pin holes. Wall thicknesses up to ¾-inch are capable of being measured by the Penetron. The amount of working space required for the tangential method is only 1½ inches.

The field method of measuring the re-

Inside Distillate Producing Equipment

maining wall thickness on well head connections consists of making a preliminary visual survey of the spots to be calipered by the Penetron. Once the inspection points are determined, direct wall thickness readings are taken 90 degrees apart on a circumferential section of the pipe. Any reading which shows that the remaining wall thickness is less than the original wall thickness is indicative of corrosion or wear.

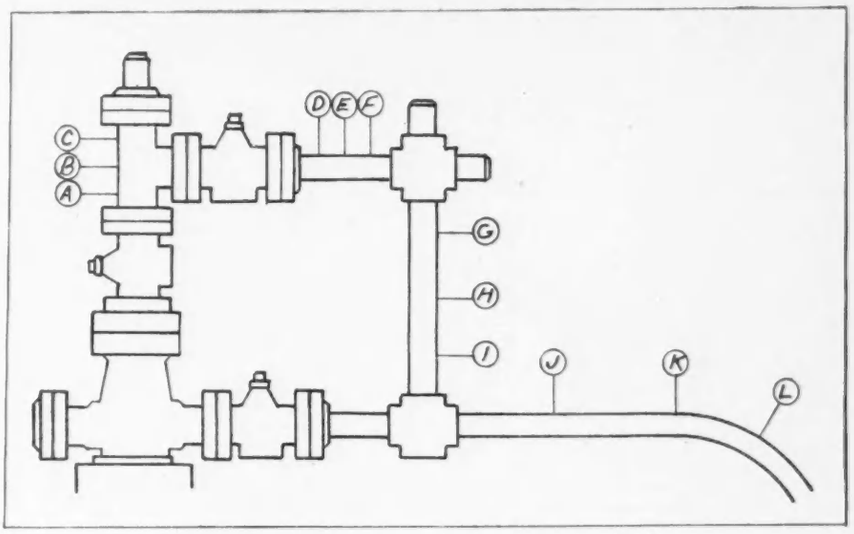
Assuming an actual case of an initial Penetron survey, refer to the data sheet, Figure 1. The determined inspection points are indicated by letters of the alphabet. The original thickness of the two-inch nipples of the Christmas tree is .436 inches. At point (I) the four readings are .435 on the top, .438 on the right side, .435 on the bottom, and .436 on the left side. The variations in wall thickness at (I) are within mill tolerance, hence no wall reduction is indicated. However at point (E) where the original wall thickness is .436 inches, the four readings are .385, .350, .340, and .338. The variation from the original wall thickness is not within mill tolerance, hence corrosion or wear is present. The remaining inspection points are calipered by gamma rays in the same manner and the presence or absence of reduction in wall thickness is thus detected.

Pipe wall thicknesses of meter runs, flow lines, loops, and some Christmas-tree connections have been measured by this method. The average wall thickness measured by each reading has been used in the determination of retirement of equipment from service. A retirement wall thickness is generally established at a point where further use in pressure serivce is considered dangerous.

Inasmuch as corrosion occurring in high-pressure distillate fields is unpredictable, it is considered good practice to make periodic Penetron examinations of pressure containing materials in the field or cycling plant. Gamma ray wall thickness measurements should be made as early in the life of the equipment as possible in order to establish original wall thicknesses at given check points. A subsequent measured thickness at a given point compared with an original Penetron measured thickness will determine the loss of metal quite readily. This procedure is superior to comparing the results with the nominal thickness. Mill tolerances allow 12½ percent less wall thickness than the nominal indicates.

Until the advent of the Penetron, existing methods of corrosion detection either have been destructive of the materials being examined, have been time consuming, or have involved the use of extremely cumbersome equipment. The Penetron is a fast method of determining the amount of corrosion inside material by direct measurement of the thickness of the remaining wall. A thickness reading can be made in a minimum time of 30 seconds with an accuracy of plus or minus 5 percent.

The Penetron being operated by one man.



Wilco Producing Company, Bleigh Gas Field, Bayou County, Texas
State Lease, Well No. 18

Inspection Point	Penetron Thickness, Inches	Nominal Thickness, Inches	Nominal O.D., Inches	REMARKS
A				
Top	.595			
Right Side	.590	.600	3	Well flowing at 2000 pounds pressure during inspection
Bottom	.600			
Left Side	.605			
B				
Top	.600			
Right Side	.595	.600	3	No thinning indicated
Left Side	.605			
C				
Top	.595			
Right Side	.600	.600	3	No thinning indicated
Bottom	.605			
Left Side	.590			
D				
Top	.400			
Right Side	.395	.436	2	Thinning indicated
Bottom	.365			
Left Side	.372			
E				
Top	.385			
Right Side	.350	.436	2	Thinning indicated
Bottom	.340			
Left Side	.338			
F				
Top	.375			
Right Side	.360	.436	2	Thinning indicated
Bottom	.344			
Left Side	.342			
G				
Top	.380			
Right Side	.382	.436	2	Thinning indicated
Bottom	.375			
Left Side	.387			
H				
Top	.395			
Right Side	.400	.436	2	Some thinning indicated
Bottom	.402			
Left Side	.410			
I				
Top	.435			
Right Side	.438	.436	2	No thinning indicated
Bottom	.435			
Left Side	.436			
J				
Top	.340			
Right Side	.345	.343	2	No thinning indicated
Bottom	.342			
Left Side	.340			
K				
Top	.342			
Right Side	.345	.343	2	No thinning indicated
Bottom	.340			
Left Side	.339			
L				
Top	.320			
Right Side	.325	.343	2	Thinning indicated
Bottom	.330			
Left Side	.320			

Figure 1. A typical Penetron corrosion survey. Inspection points are designated by letters of the alphabet. Readings are taken on the top, right side, bottom and left side of horizontal pipe with the surveyor facing upstream. Vertical sections of pipe are reported as if they are horizontal extensions to the connections to which they are attached

Plastic Cementing

In Permian Basin Gas-Oil Ratio Remedial Work

By FRED R. HOLLAND
Manager, Oil Well Chemical Service Company, Fort Worth

REMEDIAL work on wells with excessive gas-oil ratio is currently one of the most pressing problems facing Permian Basin operators in West Texas and New Mexico. The production of excessive amounts of gas with oil is an economic waste that lowers expected ultimate recovery and presents many problems of operating procedure, not the least of which is the curtailment of the allowable production from the wells producing high volumes of gas.

There are two main causes for the gas production. The first, and by far the most common, is the expansion of the gas caps in the different fields. When the wells were drilled, the casing was set well below the gas cap. As oil was withdrawn the gas cap expanded until the gas began entering the wells in large volumes. The second cause has been the failure of cement jobs around casing shoes. This has been due in some cases to acidizing of the well at its completion and aggravated by corrosion of the cement sheath by the hydrogen sulphide gas that is common in the producing formations of the region. There are other reasons not so common as these, such as the depletion of intermediate zones causing entry of gas in thin sections, and failure to recognize zones that carried gas when the wells were drilled. However, most of the wells having high gas-oil ratios fall into one of the first two classifications.

The problem of coping with this situation has been approached from two angles: reconditioning work on individual wells; and field control, which has recently given serious consideration to the possibility of recycling gas as a means of controlling gas-oil ratio. The second method entails large investments in mechanical equipment and is not considered so desirable as the first method.

Individual Wells

In the field of reconditioning individual wells, there have been several methods used. These have been setting liners, running formation packers, squeeze cement jobs to block off the gas producing section from the bore hole, establishment of fluid seals and controlled acidizing to increase the volume of oil in the bore hole.

Of the different methods used, surveys of several fields have shown that better results have been obtained by squeeze cementing than by other methods. However, there have been many failures in squeeze jobs using Portland cement due to the deterioration of cement in the presence of hydrogen sulphide gas. Liners have in many instances been satisfactory but the percentage of success in this method has not been so great as in the squeeze cementing process. Since liners are cemented, the possible corrosion of the cement is a factor that must always be reckoned with when planning this type of work.

The most common type of remedial work done to date has been the running of formation packers. This method has been successful in many cases, but well conditions must be very good for a successful packer setting. If the hole has been shot, or acidized heavily, it is very hard to prevent the gas by-passing the packer. For the same reason, wells in which the casing is smaller in diameter than the well bore are not good subjects for this type work. If the gas-oil contact is in the main body of a producing section, the gas by-passes the packer.

The success of the other methods mentioned has been so rare that they have been discarded as uneconomical. In these methods, temporary success has been achieved as long as dead oil is in the formation but since this is quickly produced, the well is soon back to its former state.

During the past year considerable work has been done in the Goldsmith Pool in Ector County, Texas, the Wasson Pool in Yoakum and Gaines Counties, Texas, and in some of the fields in Lea County, New Mexico. This work has had a high percentage of success and may very likely be the answer to many of the problems of gas-oil ratio control. This method has been an improved type of squeeze cementing work using a resinous cement as the sealing material.

The resinous cement used in this work is a synthetic phenol-formaldehyde compound which upon hardening forms a plastic similar in many respects to that used in the manufacture of household appliances and everyday articles such as fountain pens, phonograph records, telephones, etc. This material has properties which make is peculiarly suited for well remedial work. When it is in a liquid state it has a very low viscosity as compared to cement slurries. Its viscosity ranges from 1.5 to 4.0 poises. It has specific gravities ranging from 1.2 to 1.5. It is a homogenous material which is not contaminated by coming into contact with brines or muds. None of its ingredients will filter out when pumped through the finest screens so there is no danger of building up a filter cake on the well bore when the material is used. The pH of the material is 7.4.

Production of excessive amounts of gas with oil is one of the greatest problems confronting Permian Basin Operators

The material hardens in two hours through a chemical reaction set up by mixing the materials. No catalysts are used and no heat is generated in the hardening process which might set up porosity in the finished plastic. The temperatures at which this material is hardened range from 80° F. to 140° F., which are bottom hole temperatures encountered in the Permian Basin at depths ranging from 2500 to 10,000 feet.

The material hardens gradually, and the compressive strength increases for several days. When the material is hardened it has a reddish appearance ranging from semi-transparent to opaque, depending on the specific gravity of the liquid resin. Laboratory tests have shown the compressive strength after 24 hours to be 2453 pounds per square inch, after 144 hours 8480 pounds per square inch, and after 288 hours, 9670 pounds per square inch. The tensile strength is achieved more quickly. After 24 hours it has been observed as 265 pounds per square inch, after 144 hours, 280 pounds per square inch, and after 288 hours, 294 pounds per square inch. The hardened material is impervious to acids, brines or gases of low pH. The material drills very easily, and when it is set in wells as a liner it is usually drilled out in six to eight hours.

Workover Jobs

The procedure for workover jobs to control gas-oil ratio by the use of plastic cement, with some variations to suit individual wells, is as follows: The gas-oil contact is determined, usually through the medium of a temperature survey. These surveys are surprisingly accurate in the Permian Basin. The well is then killed and the tubing pulled out and the oil producing section protected by gravel plugback or a bridging tool. The gravel or bridging tool is sealed into the wall of the hole with plastic cement to prevent its being by-passed by the plastic cement used in the squeezing work. At this point the wells usually will take fluid on a vacuum. The tubing is then run back into the hole and a predetermined volume of plastic cement is pumped to bottom. The tubing is pulled up, packed off, and pressure is pumped against the plastic cement to displace it into the formation. After pressure is held against the hardening plastic for two hours, a measuring line is run to find the top of the plastic plug and calculate the amount of plastic in the formation. If, and after the plastic is hardened, the well will still take fluid, this procedure is repeated. If the well will not take fluid, the job is then considered finished. After six to eight hours the plastic is drilled out with rotary or cable tools,

depending on the type of workover unit on the well. The usual practice is to drill out the plastic to the top of the cap above the bridging tool or gravel, and at that point unload the hole sufficiently to test the shutoff. If the shutoff is satisfactory, the well is then cleaned out to bottom.

In the earlier work of this type, considerable care was taken to spot the plastic accurately. At that time, gravel was used to plug back the well to the gas zone and the plastic cement put into the well with a dump bailer. Since this method is rather slow and involves considerable rig time expense, the tubing method is being used more frequently. For the same reason, a bridging tool is more satisfactory than gravel since it can be cleaned out of the hole much quicker.

There are several advantages to the plastic squeeze job over the older methods. A plastic full hole liner is in effect installed in the well. This makes it possible to deepen the well, or do other types of work, without the possibility of running out of hole such as would be the case were a liner of smaller diameter than the casing run into the well. Since deeper pays are being found under the older producing fields, there is always the possibility that some day a well may be deepened to a lower producing horizon and it is desirable to have as large a hole as possible to work in.

Encouraging Results

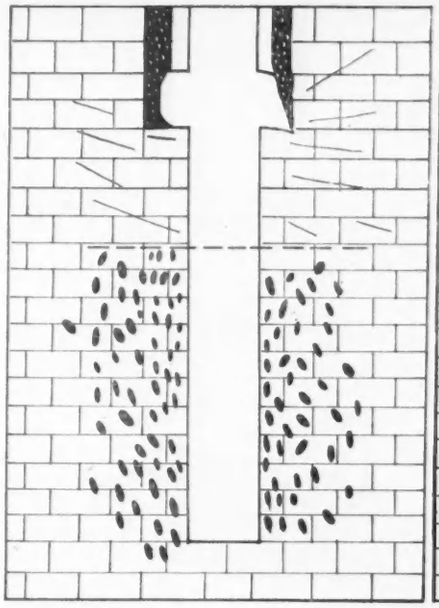
The results of workover jobs of this type have been encouraging. Some of the jobs have been completed and the wells returned to production for more than a year. In these wells the plastic liner has held successfully, and the increase in allowable brought about by the removal of the penalty restrictions has paid for the workover job and yielded revenue in excess of 200 percent of the total cost of the workover.

Two examples of this may be cited in wells in the Goldsmith field, Ector County, Texas. In the first well the gas intrusion came from a 16-foot section, the base of which was 27 feet above the bottom of the hole, and the top 80 feet below the casing seat. The gas-oil contact was determined by temperature surveys. After the cap was set, and before the plastic cement was squeezed into the formation, the well would not stand full of oil. After 90 gallons of plastic cement was squeezed into the formation, hydraulic pressure of 1000 pounds per square inch was applied at the well head. After thirty minutes this pressure remained at 850 psi, and the top of the plug was located as 75 feet below the casing seat by steel line measurement. It was decided that the gas was shut off, and the well was cleaned out to bottom and swabbed in. Previous to the workover job the gas-oil ratio had been 18,000/1. Eleven months after the workover the gas-oil ratio was 1080/1. The oil production from the well had not been affected and 24 barrels per day of penalty allowable was restored as a result of the workover.

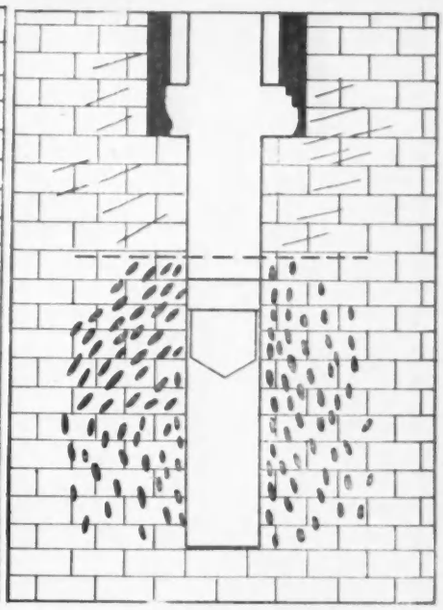
In the second well, it was determined by temperature surveys that the point of gas entry was immediately below the casing shoe. The cap in this case was set five feet below the casing shoe. Before squeezing plastic cement, the well would not stand full of fluid. Fifty gallons of plastic cement were squeezed behind the pipe, leaving a plastic plug eight feet inside the casing. This was drilled out to the top of the cap, and 1000 psi pressure applied to the well head. This fell off only 75 psi after 45 minutes. The well was then cleaned out to bottom and swabbed in. The gas-oil ratio was reduced from 28,000/1 to 1400/1 and 26 barrels per day of penalty allowable restored. The oil production was not affected by the workover job.

A survey was made recently of 14 wells in the Permian Basin on which this type of workover was performed. Of these 14 wells, 12 were successful in bringing the gas-oil ratio well within the allowable limits. In one of the unsuccessful jobs mechanical difficulty was given as a reason for the failure of the workover job. The plastic cement was not displaced into the formation because the string of casing in the well was not in good enough condition to withstand the pressure necessary to displace the plastic cement into the formation.

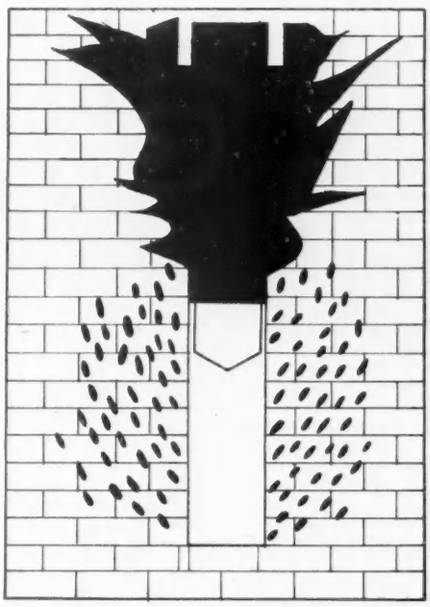
Cost is always a very important factor in considering remedial work. If the workover job will not pay out in a year, it is usually approved reluctantly, if at all. Past experience has shown that in many cases the cost of reconditioning a well has approached the cost of the original completion. The number of past failures in gas-oil ratio remedial work in the Permian Basin has caused a cool reception and very searching tests of any new method of approach to this problem. However, the results, and the low cost, of plastic cement squeeze jobs have caused some of the companies to believe that possibly they have found a way to solve the gas-oil ratio problem.



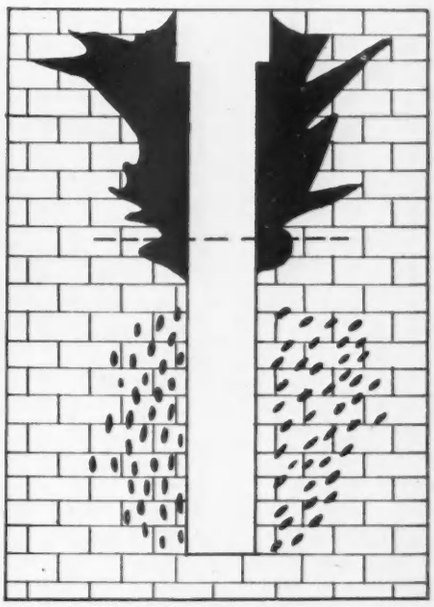
Gas-oil contact—determined by temperature survey.



Drillable plastic bridging tool run on wire line and set slightly below gas-oil contact, and sealed into wall with plastic cement.



Plastic cement has been squeezed into formation above bridge plug, and behind casing shoe, leaving plastic plug in pipe.



Plastic cement and bridge plug has been drilled out of bore hole, leaving full hole plastic line from casing shoe to top of oil pay.

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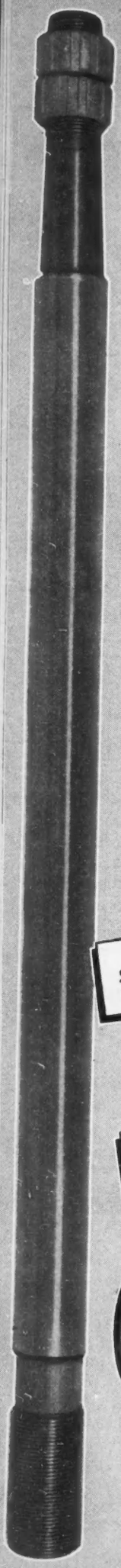

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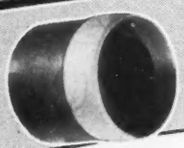

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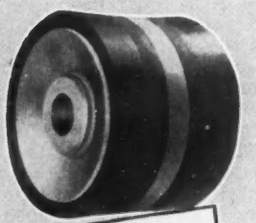

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Mathematics Of Cementing

And Other Problems

Part 4

By ROY E. EDWARDS, Engineer
Halliburton Oil Well Cementing Company

A FAIRLY comprehensive discussion of drilling mud characteristics and other problems will conclude this series on fundamental mathematics and engineering principles designed for the busy operator and the man in the field who daily encounters and is called upon to solve these and other problems. Upon the field man's shoulders rests the responsibility for efficient operation which, in the long run, means more oil and more profits.

A good drilling mud will lubricate the bit and permit good drilling speeds without exerting a high torque. The mud should also bring the cuttings to the surface, hold the cuttings in suspension during a trip, and permit the cuttings to settle out in the pit if a vibrating screen is not used. As the hole is drilled the mud should build up a good filter cake on the walls of the hole of sufficient thickness to prevent the passage of water into the formation and yet not thick enough to cause sticking of the drill pipe. When water or gas are encountered the mud column should have sufficient head to control these elements and control the swabbing action when the tools are pulled.

A few minutes after circulation is suspended the mud must begin to gel. In other words, it must have a gel strength to hold cuttings in suspension and at the same time low enough to prevent high pressures when starting circulation.

In drilling through gas the mud becomes cut due principally to the following causes:

1. Gas present in the pore spaces of the sand being drilled and removed from the hole as cuttings necessarily have to leave the hole as cuttings mixed with the mud.

2. Displacement of the gas in the formation by water until a filter cake is built up of sufficient thickness.

Gas is held in the mud by the following methods:

1. By a simple mixture of the gas with the mud. A low enough viscosity will allow the gas to escape to the surface.

2. By the solution of the gas in the mud.

3. By absorption in the pores of the mud solids in the drilling mud.

A solution of brine will "knock" the viscosity of a mud down and cause a settling of the mud particles and cuttings. A 3 percent brine solution will cause bentonites to settle almost completely.

Muds are often treated with tannic acid to reduce the viscosity or with caustic or hydrated lime to "boost" the viscosity.

Measuring Viscosity

The viscosity of drilling muds is usually measured on a drilling rig by means of a Marsh Funnel. This device is a funnel with a small copper tube as an outlet through which the fluid flows. The procedure used for making the viscosity determinations is as follows:

The funnel is filled with a sample of the mud to be tested, about 1500 cubic centimeters, and the time of efflux of the first 1000 cubic centimeters, flowing into a measuring cup is measured accurately with a stop watch.

To determine accurately the weight of mud, it is best to use a mud hydrometer. This device is based on the principle of floating bodies. This is a law of mechanics which states that a floating body is buoyed up with a force equal to the weight of the displaced liquid. Now, since the volume of liquid displaced by the hydrometer increases very little, due to the increased displacement of the stem, as we put given weights of mud in the cup the stem will sink a given distance for each weight of mud, hence it is possible to calibrate the stem in pounds per gallon and pounds per cubic foot.

Let us explain some of the mathematics involved in computing mud weights.

Frequently, to get an 11-pound mud, or any other weight, the difference between the desired weight per gallon and the weight per gallon of water is taken. This difference is assumed to be the necessary amount of dry mud to be added to each gallon of water to get the desired weight of mud. In such a procedure the increase in volume is entirely neglected. The result is that the weight mud mixed is really less than that desired.

Suppose we had a gallon of water in a gallon container (Figure 1). We wish to mix a certain weight of mud and desire to have no more than one gallon of fluid when the job is completed. Obviously, some of the water must be removed from the container and dry mud added.

Let y = the volume of dry mud put in the container.

Then 1 — y = the volume of water to be used in mixing the mud fluid.

Let s = specific gravity of the desired weight of mud.

Let w = specific gravity of the dry

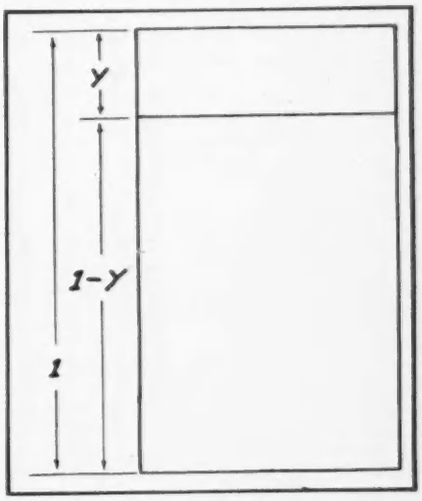

FIGURE 1

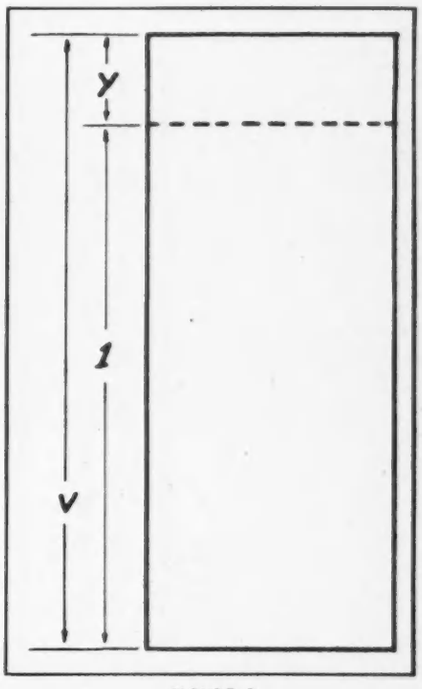

FIGURE 2

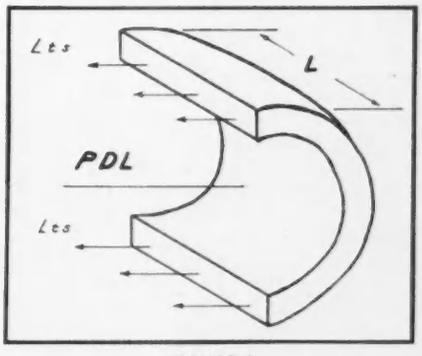

FIGURE 3

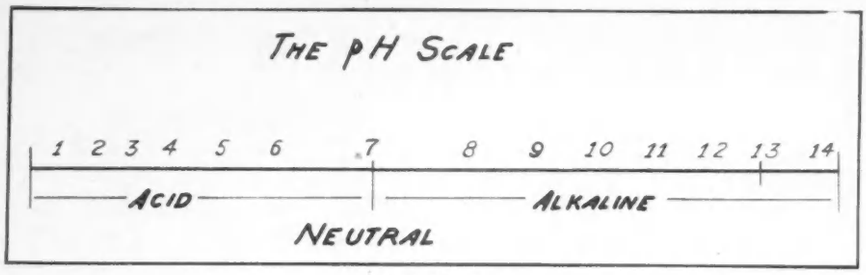

FIGURE 1-A

mud, about 2.6 for the average drilling clay.

The weight of the gallon of fluid will be equal to the sum of the component parts, that is, the weight of the component parts. The weight of a given volume of solids or fluid is equal to the product of the specific gravity and the weight of one gallon of water or one cubic foot of water, depending on the units used.

Hence, the weight of dry mud is 8.33 wy and the weight of water to be used is $8.33 \times 1 \times (1-y)$. The total weight of the mud fluid is $8.33 \times s$.

Then: $8.33 \times y + 8.33 \times 1 \times 1(1-y) = 8.33s$

$wy + (1-y) = s$

Solving for (y)

$wy + (1-y) = s$

$wy + 1 - y = s$

$y(w-1) + 1 = s$

(a) $y = \dfrac{s-1}{w-1}$

Since (y) is the volume of dry mud and the weight is 8.33 wy, we may write the required weight of dry mud as follows:

(b) Weight (dry mud) $= 8.33 \dfrac{w(s-1)}{(w-1)}$

The volume of water required will be $(1-y)$ or

(c) Volume of water $= 1 - \dfrac{(s-1)}{(w-1)}$

Note: $1 - \dfrac{(s-1)}{(w-1)}$ is a fraction of a gallon. Hence, if we have a tank or container of a given size or a given amount of water we can determine from formula (c) and the amount of water on hand just how many gallons of a desired weight mud can be obtained with the available water by dividing the total amount of water (N) gallons by the formula (c).

Number of gallons (N) gallons of water will make is:

(d) $Y = N + \left[1 - \dfrac{(s-1)}{(w-1)}\right]$

If we wish to know the number of pounds of mud (Z) required to give the desired weight to get (Y) gallons of mud we may write:

(e) $Z = Y \times 8.33 \dfrac{w(s-1)}{(w-1)}$

Assuming 100-lb. sacks the number of sacks required will be Z/100.

Following are a few examples:

(1) How many pounds of clay must be added to one gallon of water to get an 11-pound mud (11 lbs./gal.)?

Solution: Specific gravity of clay is 2.6

Specific gravity of mud is $11/8.33 = 1.31$

$1 - \dfrac{(s-1)}{(w-1)} = 1 - \dfrac{(1.31-1)}{(2.6-1)}$

$= 0.806$ gals. of water

$8.33 \dfrac{w(s-1)}{(w-1)} = 8.33 \times \dfrac{2.6(1.31-1)}{(2.6-1)}$

$= 4.2$ lbs. dry mud

Hence: $1/0.806 \times 4.2 = 5.22$ lbs. Pounds of mud to add to each gallon of water.

Note: 4.2 lbs. of dry mud and 0.806 gallons of water will give exactly one gallon of mud fluid.

Since it required 0.806 gallons of water to make one gallon of mud, one gallon of water will make 1.245 gallons of mud fluid. Now each gallon of mud requires 4.2 pounds of dry mud. Since we have 1.245 gallons of mud we must add 1.245×4.2 or 5.22 pounds of mud to each gallon of water to get the desired weight.

(2) A pit of water contains 250 barrels. It is desired to add enough clay to the water to make a 10-pound mud. Assuming the specific gravity of the clay to be 2.6 how much clay will be needed to make the 10-pound mud and what will be the resulting volume?

Solution: $250 \times 42 = 1050$ gals. of water

Hence, letting (M) equal the weight of dry mud to be used in one gallon of mixture.

(a) $M = 8.33 \dfrac{w(s-1)}{(w-1)} = 8.33 \times 2.6 \dfrac{(1.2-1)}{(2.6-1)} = 2.71$ lbs.

Then the amount of water required per gallon of mud is:

(b) $1 - \dfrac{(s-1)}{(w-1)} = 1 - \dfrac{(1.2-1)}{(2.6-1)}$

$= 0.875$ gal.

The expressions (a) and (b) give the pounds of mud and the amount of water to mix together to get one gallon of mud fluid of the desired weight.

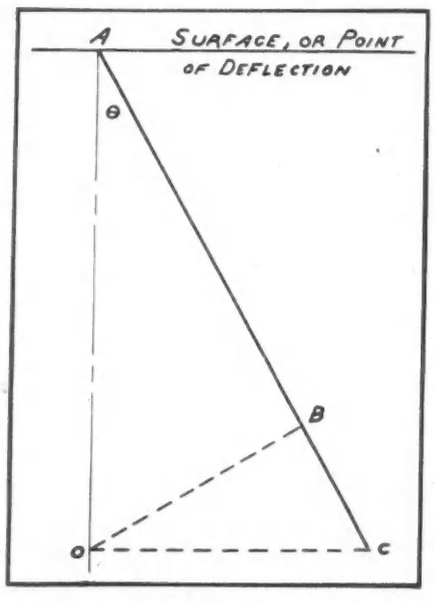

FIGURE 4

Therefore:

$\dfrac{1050}{0.875} \times 2.71 = 32.5$ sacks

Required volume of dry mud is:

$\dfrac{3250}{2.6 \times 8.33} = 150$ gals.

Hence the total volume of the mud fluid is $150 + 1050 = 1200$ gallons.

Let us approach the problem of increased volume, over and above one gallon, by adding a given amount of mud to one gallon of water to get a given or desired weight of mud from a different angle. The following development will illustrate this new approach and give a useful formula.

Let y = the volume of mud to be added to a gallon of water to get the desired weight of mud.

s = the specific gravity of the desired weight of mud.

d = specific gravity of the dry mud, about 2.6 for the average drilling clay.

V = the volume of fluid after mixture.

Then $V = 1 + y$ since we are adding the volume (y) of dry mud to one gallon of mud (Figure 2). The total weight of the mixture will be the total volume multiplied by the weight per gallon.

Total weight $= 8.33 \times Vs$

The total weight will also be equal to the sum of the weights of the component parts.

Hence: Total weight $= 8.33\,yd + 8.33$

Equating these two expressions and substituting for (y), where $y = V - 1$ from the first equation given.

$8.33\,Vs = 8.33 \times yd + 8.33$

$Vs = Vd - d + 1$

Solving for V: (a) $V = \dfrac{d-1}{d-s}$

Total volume of mud.

Solving for (y): (b) $y = \dfrac{d-1}{d-s} - 1$

(c) $y = \dfrac{s-1}{d-s}$ Increase in volume over

over and above one gallon by adding dry mud to one gallon of water. See (Figure 2).

Assuming 11-pound mud, what will be the total volume, due to adding the proper amount of dry mud to one gallon of water, and what will be the increase in volume over and above the gallon of water added to the dry mud?

Solution: $d = 2.6 \quad s = 11/8.33 = 1.32$

Then $V = \dfrac{2.6-1}{2.6-1.32} = 1.25$ gals. of mud fluid

$y = V - 1 = 0.25$ gallons

Now since we have one gallon of water to start with and the increase in volume will be due to the dry mud added we can compute the weight of mud by multiplying the increase in volume by 8.33 and the specific gravity of the dry mud, or 8.33 yd.

The following table gives some useful "dope" for the calculation of mud problems.

SPECIFIC GRAVITY
(Solids)

NAME	Specific Gravity
Iron Oxide	4.9 to 5.3
Cement	3.1 to 3.2
Dolomite	2.8 to 2.9
Clay	2.5 to 2.6
Bentonite	2.3 to 2.4
Gypsum	2.3

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SEALS AGAINST LEAKAGE . . . AND SUPPORTS THE DRILL PIPE AGAINST BREAKAGE AT THE LAST ENGAGED THREAD

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SPECIFIC GRAVITY AND POUNDS PER GALLON
(Mud Weight)

Specific Gravity	Lbs. Per Gallon
1.00	8.33
1.02	8.50
1.08	9.00
1.14	9.50
1.20	10.00
1.26	10.50
1.32	11.00
1.38	11.50
1.44	12.00
1.50	12.50
1.56	13.00
1.62	13.50
1.68	14.00
1.74	14.50
1.80	15.00

EQUIVALENTS

Multiply	By	To Obtain
Barrels of Oil	42.00	Gallons
Barrels of Oil	5.615	Cubic feet
Cubic Feet	1728	Cubic inches
Cubic Feet	7.45	Gallons
Cubic Feet	0.1781	Barrels
Feet of Water	0.433	Lbs./in.e(Lbs./sq. in.)

The pH of a Drilling Mud

The pH value of a mud, fluid or solution, gives the degree of acidity or alkalinity of the mud or fluid. Since most quantities must be expressed in terms of some numerical unit or some number a pH or hydrogen ion concentration scale has been set up. (Figure 1-A.)

The point on this scale that denotes a neutral solution is the number 7. By a neutral solution we mean one in which the acidity and alkalinity just balance.

Numbers below 7 denote the degree of acidity while numbers above 7 denote the degree of alkalinity.

It must be borne in mind that as the numbers get smaller on the acid side of the scale the mud becomes more acid. Thus a mud with 2 pH is stronger in acidity than a mud of 3 or 4 pH. The pH of a mud is important in that the application of the chemical treatment of mud to control the viscosity and wall building properties of muds may be determined by the aid of the pH value.

It has long been known that the type of colloidal material, extremely fine particles, found in surface clays in districts where drill holes do not make their own mud, becomes more stable and produces more beneficial results at a pH of 9.0-9.5 pH. It is known that if the pH of a mud is considerably over 9.5 the colloidal material begins to "curdle."

"Curdled" or flocculated muds often have a very high viscosity, put an added load on the slush pumps because of the friction due to this increased viscosity, do not liberate gas easily and permit the formation of a thick cake of mud on the walls of the hole which can contribute to the sticking of the tools.

Often the reduction of the pH to 8.5 or 9.0 will improve the viscosity and wall building properties.

Flow of Water in Pipes

The rate of flow in pipe depends on the difference in the head or pressure between the two ends of the pipe. The difference in pressure head at the source and the pressure head at the end of the line is used in overcoming the frictional resistance offered to the flow in the pipe, and in creating the velocity of flow in the pipe.

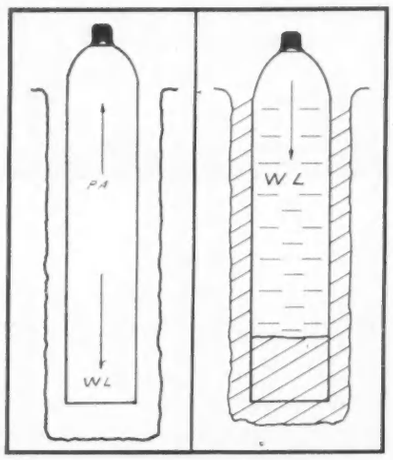

FIGURE 5

FIGURE 6

The friction head, also termed the resistance head, is that head or pressure required to overcome the frictional resistance offered to the flow. This frictional loss varies directly as the length of the pipe and the roughness of the pipe. The roughness depends upon the amount of corrosion and the scaling with age of the pipe. Collars, valves and ells in the line increases the frictional loss or resistance to flow. The frictional loss in most lines is large and must be taken into consideration in flow calculations.

In the calculations of friction head the loss in each fitting must be converted to equivalent lengths of pipe; that is, we must know what length of pipe will cause the same loss as the fitting.

TABLE 1
Friction of Water in Pipes

Rate of Flow Gal./Min.	NOMINAL DIAMETER IN PIPE Loss of Head in Feet Due to Friction per 100 Feet			
	2 Inch	2½ Inch	3 Inch	4 Inch
1	....	....	....	....
2	....	....	....	....
3	....	....	....	....
4	....	....	....	....
5	....	....	....	....
10	0.05	0.17	0.07	....
15	1.08	0.36	0.15	....
20	1.82	0.61	0.25	....
25	2.73	0.92	0.38	....
30	3.83	1.29	0.54	....
35	5.10	1.72	0.75	....
40	6.60	2.20	0.91	0.22
45	8.20	2.80	1.15	0.28
50	9.90	3.32	1.38	0.34
70	18.40	6.20	2.57	0.63
75	20.40	7.10	3.00	0.73
100	35.40	12.00	4.96	1.22
120	50.00	16.80	7.00	1.71
125	54.00	18.20	7.60	1.86
150	76.00	25.5	10.50	2.62
175	102.00	33.80	14.00	3.44
200	129.00	43.10	17.80	4.40
225	....	54.30	22.30	5.45
250	....	66.00	27.20	6.72

TABLE 2
Friction of Water Fittings

Pipe Size	Equivalent Length of Straight Pipe	
	Valves (wide open)	90° Ell
2 Inch	1.8 ft.	5.0 ft.
2½ Inch	2.2	5.0
3 Inch	2.9	8.0
4 Inch	4.1	11.0

The velocity head or pressure head is defined as that head or pressure required to create the velocity of flow. It is the pressure necessary to accelerate the mass of water from a state of rest to the velocity attained in the pipe. The equation for calculating the velocity head is $H = v^2/64.4$, where H is the velocity head in feed of water and v is the velocity of flow in feet per second.

The velocity head or pressure head is defined as that head or pressure required to create the velocity of flow. It is the pressure necessary to accelerate the mass of water from a state of rest to the velocity attained in the pipe. The equation for calculating this head is, $H = v^2/64.4$ where H is the head in feet of water and V is the velocity of flow in feet per second. The velocity head is usually quite small compared to the total head and often can be neglected without serious error.

The static head or pressure is the pressure measured by the pressure gauge and it is the pressure tending to burst the pipe.

The total head or pressure in a pipe line is the sum of the static and velocity pressure at the point under consideration. With no flow the velocity head is zero and the static head is equal to the total head.

Water pressure is most commonly expressed in pounds per square inch or feet of water.

Suppose we have a tank on a hill. We wish to know at what rate we will be supplied with water. We are mixing 200 sacks of cement. The tank is eight feet high and the difference in elevation is 50 feet. There is 1000 feet of three-inch line and there are two gates and one Ell.

Solution: Assuming 10-minute mixing time.

200/10 = 20 sacks/min.

Using 6 gals./sack.

20 × 6 = 120 gals./min. to mix in 10 minutes.

50 + 8 = 58 feet available head (neglecting change in water level).

1—3 in. Ell = 8 ft of pipe (Table 2).

2—3 in gates = 2 × 2.9 = 5.8 feet. (Table 2).

5.8 + 8 = 13.8 Equivalent length of pipe.

1000 + 13.8 = 1013.8 or 1014 feet of pipe.

1014/100 = 10.14 hundreds of feet.

58/10.14 = 5.73 feet available per hundred feet.

From Table 1 in the column for three-inch pipe we find that the flow is between 100 and 120 gallons per minute. On the basis of 100 gallons per minute we will be able to mix 100/6 = 16.7 sacks per minute.

The foregoing problem is based on gravity feed or gravitational flow. The above material will aid in the estimation of the available water flow even though the tables are based on cast iron pipe.

Miscellaneous Problems

What is the theoretical maximum pressure output of a two-pump steam outfit with 10 x 4½ x 10 pumps and 250 pounds steam pressure?

Solution: With 10-inch pistons on the

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Controls This Abnormal Pressure

The extra margin of safety built into Cameron drilling and completion control equipment was again demonstrated on May 14 when a well in the Egan field, Acadia Parish, Louisiana, developed 8,000 lbs. pressure while testing a new deep sand. Tubing flow pressure of 7,200 lbs. climbed to 8,000 lbs. when the well was shut in. The Cameron 5,000 lbs. working pressure Christmas tree, with a pressure over-load of 60% kept things under control during the critical hours after the master gate valve was closed and until the well "loaded up" with fluid to cause the abnormal pressure to diminish.

While, for several years, a majority of the world's deep, high pressure wells have been drilled and/or completed with the aid of Cameron pressure control units, Cameron completion control equipment has been spotlighted in recent weeks because of its use on a number of record-breaking wells: Irby No. 1 in the Berclair field of South Texas with 6885 lbs. flow pressure; Smith-State Unit No. 1, Well No. 2 in the Weeks Island field of South Louisiana—completed at 13,778' as the world's deepest producer; Holland No. 1 in the Blue Lake field of South Texas with an all-time high initial flow pressure of 8200 lbs.; and the above well, No. 3 Elizabeth Regan, with 8000 lbs. shut-in pressure.

In completing scores of high pressure wells, the Cameron field organization has acquired a broad understanding of the numerous problems encountered and has perfected methods and equipment to minimize completion hazards.

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steam end the total force is $\frac{\pi 10^2}{4} \times 250$ or 6250 pounds force.

This force is transmitted to the fluid end piston and since we are considering atmospheric pressure as the reference point, or zero gauge pressure, the drop in pressure across the fluid end of the first plmp will be the difference of the input pressure minus the output pressure, or y — O. Then this pressure should exert a force equal to and opposite to the one on the steam piston, according to the laws of mechanics.

Hence: $(y - O)\ \frac{\pi 4.5^2}{4} = 6250\pi$

$$\frac{y \times 4.5^2}{4} = 6250$$

$y = 1230$ lbs./square inch.

This pressure is the input pressure to the second pump.

Hence since the steam piston is the same on both pumps. (The pressure drop across the second pump will be $z - 1230$.)

$$(z - 1230)\ \frac{\pi 4.5^2}{4} = 6250$$

$z - 1230 = 4 \times 6250/4.5^2$

$z = 1230 + 1230$

$z = 2460$ lbs./square inch.

This is the output pressure of the second pump.

In the following we will endeavor to give a formula for the bursting of pipe. According to the laws of mechanics the tension in the pipe or metal should balance the resultant pressure on the inside of the pipe.

Hence: PDL = 2 Lts. (Figure 3).

$$P = \frac{2st}{D}$$

This is known as the hoop tension in the pipe. The formula given is known as Barlows Formula and is the one most generally used in figuring the bursting strength of pipe.

In this formula the letters stand for the following:

P = Internal pressure in lbs./square inch
t = Wall thickness in inches
D = Outside diameter in inches
s = Ultimate strength of the metal in pounds per square inch (lbs/sq. in.).

In most cases the pump pressure will be the pressure tending to burst the pipe if the hole is loaded on the inside and outside as the hydrostatic pressure will cancel out.

Crooked Holes

In Figure 4 is shown the condition we assume to exist in crooked holes. The line AD is the center line of the hole we should have drilled. In other words this line is perpendicular, at 90 degrees to the horizontal, at the earth's surface.

The problem is to find the horizontal drift of the hole we have drilled, that is to find out just how far we wandered off in the horizontal direction; also to find the loss in depth of the hole.

By drawing the imaginary line DC perpendicular to the line AD from C the horizontal drift is represented by the line BC.

We can find the numerical value of these two "unknowns" if we know the side AC and the angle (θ).

AC is the recorded depth we have drilled and (θ) is the angle determined by the acid bottle or other similar device.

According to trigonometry in a right angle the sine of the angle is defined as the side opposite the angle divided by the hypotenuse, or sine θ = DC/AC.

According to trigonometric tables the since of a one degree angle is 0.01745.

Then DC = AC sine 1°
= 0.01745 AC

Most tables for crooked holes give AC as equal to 100 feet consequently the horizontal drift DC is 0.01745×100 or 1.745 feet per 100 feet of depth for one degree.

For rapid calculation when no tables are available it will be sufficiently accurate to multiply 1.745 by the angle on the acid bottle and the total depth divided by 100.

The loss in depth is the distance BC. If we had drilled the depth AC along the line AD we would be at some point below the point D consequently by taking the difference in the two sides AC and AD we will have the loss in depth.

According to trigonometry in the right angle the cosine of an angle is defined as the side adjacent to the angle divided by the hypotenuse, or cosine θ = AD/AC.

From trigonometry tables the cosine of a one degree angle is 0.9998.

Then AD = AC cosine 1°
= 0.9998 AC

For AC = 100 feet
AD = 100×0.9998
= 99.98 feet

Loss in depth = 100 — 99.98 = 0.02 feet.

Hydrostatic Forces

There are two general cases in which the hydrostatic forces tend to lift the pipe out of the hole when cementing.

The first case is that of a string of pipe setting in a tight or bridged hole. This is comparable to a piston in a cylinder with the cross sectional area under the swadge or "head" considered as the piston area and the pump pressure as the pressure acting on this area. Since in most cases we do not know exactly where the hole is bridged, we will have to neglect the effective hydrostatic head of the fluid in the hole that will also tend to aid the lifting effect by acting on the annular area of the pipe wall.

According to mechanics and practical experience, if we oppose a force with a greater force the direction of motion will be the same as that of the greater force.

Applying this to the pipe we see that if the force exerted by the pressure is greater than that of weight of the pipe, the pipe will be lifted out of the hole.

The force exerted by the pressure is equal to the pressure multiplied by the area or PA. The weight of the pipe will be equal to the weight, complete, per foot times the length or Wl.

The pressure necessary to just balance Wl may be found from the following equation.

PA = Wl

or

$$P = \frac{Wl}{A}$$

P = Gauge pressure
A = Area under pressure
W = Wt. per foot
l = length of pipe

Obviously, any pressure greater than P will lift the pipe out of the hole.

The second case deals with the force caused by the hydrostatic unbalance of the fluid on the inside and outside of the pipe. The effective force tending to lift the pipe is the difference between the hydrostatic head of the fluid on the outside and that on the inside multiplied by the area under the swadge or $(P_2 - P_1)A$.

This force is opposed by the weight of the pipe acting downward on Wl.

Since we probably will know the height or amount of mud or fluid left in the pipe and the approximate density of the cement and of the fluid with which the plug is pumped down, we can calculate the left hand side of the equation. If it is greater than the quantity Wl the pipe will be lifted out of the hole.

Note that the first case is dependent upon the pump pressure and the second depends upon the hydrostatic unbalance.

Following are some examples:

1. What is the pressure necessary to lift 180 feet of 10¾-inch 40.05-pound pipe in the hole if the hole is bridged on the outside of the pipe.

Solution:

$$P = \frac{40.05 \times 180}{A}$$

$$A = \frac{\pi d^2}{4} = \frac{\pi \times 10.75^2}{4}$$

$$P = \frac{40.50 \times 180 \times 4}{10.75 \times \pi}$$

Wl = 80.5#/in.² will just balance weight of pipe; allowing for friction of the bridge gripping the pipe it will take about 90 to 100#/in.².

If the quantity $(P_2 - P_1)A$ is greater than the weight Wl the pipe will be lifted out of the hole. If it is equal to or less than the weight of the pipe the pipe will remain in the hole.

Hence: $A(P_2 - P_1) = Wl$

Where P_2 = the effective hydrostatic pressure of cement
P_1 = the effective hydrostatic pressure of mud
W = weight/foot of pipe
l = length of pipe
A = area under pressure

Now $P_2 = 5.2hd_2$
$P_1 = 5.2hd_1$

Hence $A(5.2hd_2 - 5.2hd_1) = Wl$
$5.2h(d_2 - d_1)A = Wl$

Note that h is the height of the mud or water in the pipe as the hydrostatic head of the cement left in the pipe will be cancelled by an equal height of cement on the outside.

The preceding example worked out is the most common case. A similar case will be that of the pipe setting on bottom.

2. Will a 15 lb./gal. slurry, with cement returns, lift three 30-foot joints of seven-inch, 17-pound pipe in the hole if five feet of cement is left in the pipe? Cement is to be displaced with water.

Solution:

Effective height of cement is
90 — 5 = 85 feet.

Weight of pipe = 90 × 17 = 1530#

Hence:

$$5.2\ (15 - 8.33) \times \frac{85}{100} \times 7^2 \times \frac{\pi}{4}$$

$$= 1530$$

$$1145 = 1530$$

In other words, the hydrostatic unbalance is less than the weight of the pipe by 385 pounds and the pipe will not move up the hole because of this unbalance.

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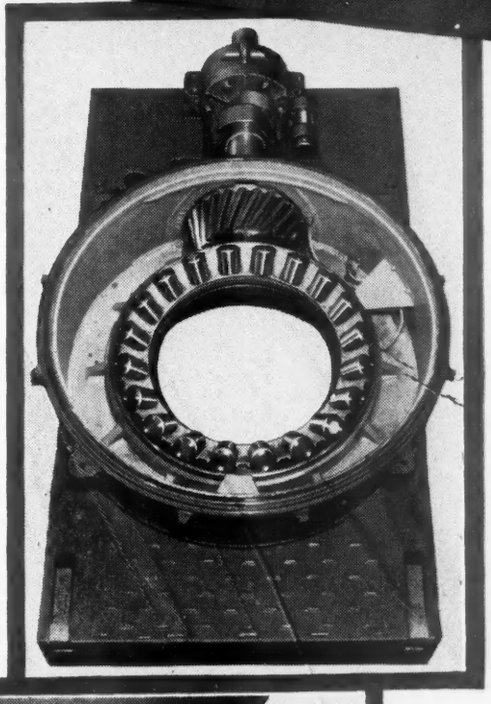

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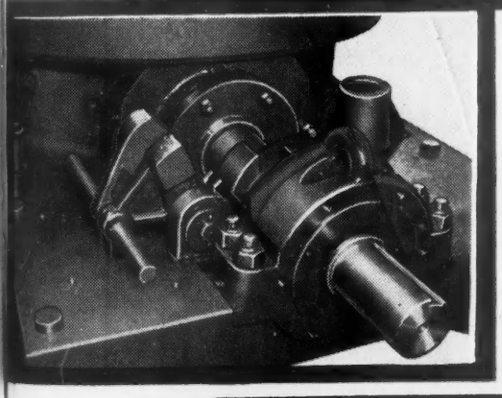

CENTER: Showing details with top of table removed.

BELOW: Locking pawl arrangement showing both pawls disengaged—guard removed.

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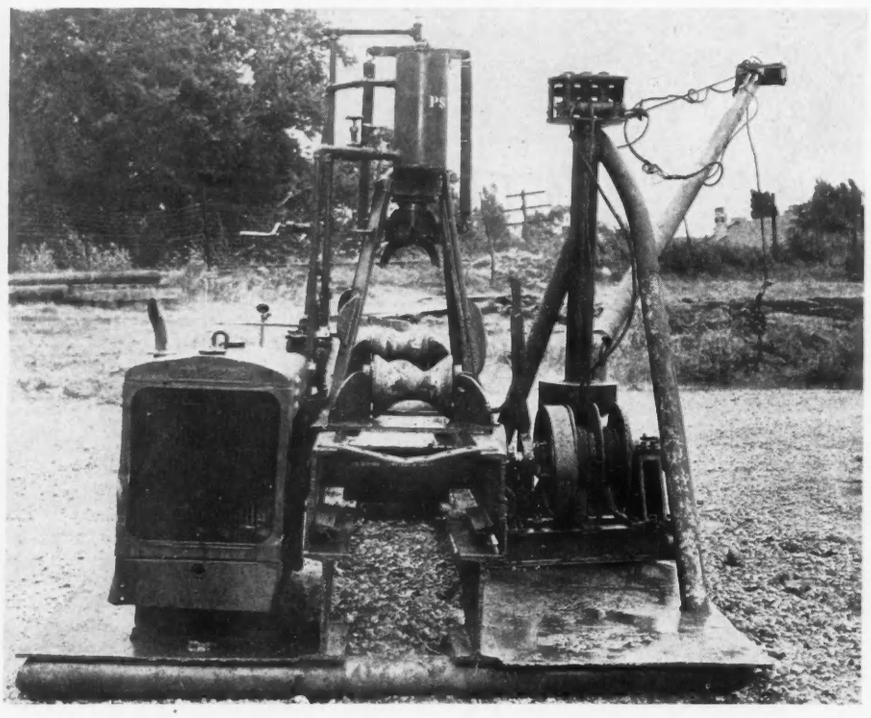
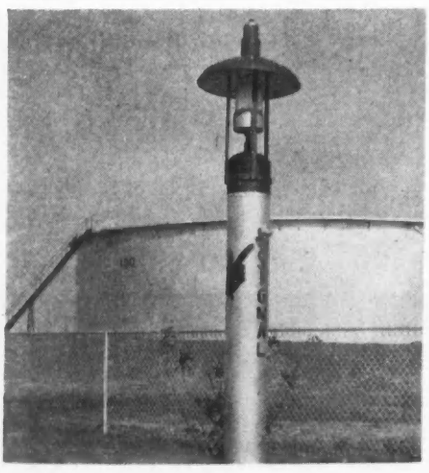


PIPE BENDING

Combining a shop-make pipe straightening machine and a boom with power winch has proven very satisfactory in the operations of one pipe line construction company. Designed by the company's engineers, both boom and straightening machine are mounted on one skid made of four-inch diameter pipe. Two 10-inch I-beams are welded at the center of the skid as shown, on top of which is mounted the spool carriers and the hydraulic jack. A small pressure pump driven by the gasoline engine provides the necessary pressure for raising or lowering the jack head. At the right of the illustration is the winch and boom mechanism. The boom is made of three-inch pipe welded to shape as shown, while the winch is driven from a power take-off from the gasoline engine through a spline clutch. Such a unitized arrangement makes it easier to handle pipe of large diameter in the machine, and completely eliminates the need for a second power winch unit normally required to place the pipe in the machine.

Gate Signal

Many pipe line stations, enclosed in high wire fences during the war emergency as protection against possible saboteurs, find that the high barrier is effective safeguard against curious and sometimes annoying visitors, and are retaining the enclosure and strict locking orders during peacetime operation.

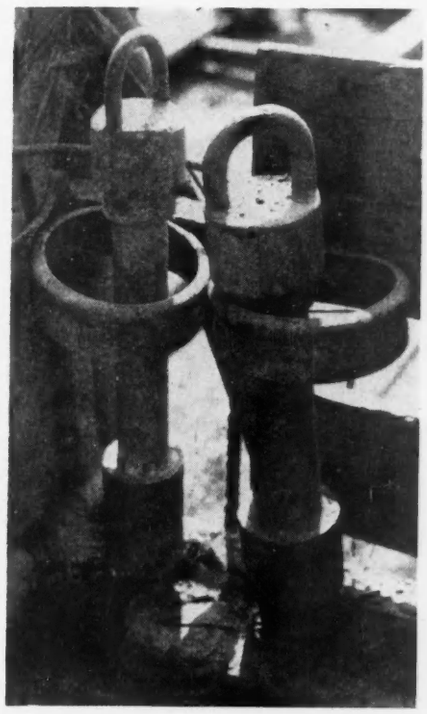


STATION CARE

One such installation, where the station is kept behind locked gates, solved the problem of eliminating long waits for the gate to be released for authorized entrants without the need for providing a large number of keys. On a lamp post set just outside the gate, and serving to permit inspection of would-be callers at night, was also mounted a call button, connected to a warning device within the station engineer's office.

To call attention to the button, the word "SIGNAL" was lettered on the post, and a hand, index finger pointing to the button, painted on the side where it would be most apparent to one wishing entry.

Thread Protectors Provide Rack for Subs



TOOL CARE

Proper stowage of lifting subs on the derrick floor will go far toward preserving threads and keeping the units in an erect position where they can easily be picked up. One company makes it a practice of bolting a series of casing thread protectors at regular intervals to the inside of the rig guard rail at the proper height above the floor to allow the short subs to be stood up inside them in the manner shown.

Racked in this convenient, easily accessible manner, the subs ordinarily rest upon 2x12 planking placed under them so as to raise the threaded ends slightly above the level of the floor, and somewhat out of the way of mud, water and debris. Large diameter thread protectors are used so as to allow ample clearance for all sizes of lifting subs and to allow clearance for the quick hoisting of the units with less likelihood of their catching or binding on the protectors.

Two-Piece, Hinged Lid Covers Mouse-Hole

RIG FLOOR EQUIPMENT

A practical, easily-made mouse-hole cover utilized by one company consists of a two-piece unit that is hinged to a light sheet iron collar secured over the hole in the floor. One of the sections is triangular in shape, the pointed end notching into the V-shaped side on the other part of the cover. Each side has a cut-out for a hand-hold and is hinged with a steel rod to the collar. Lying practically flush with the floor, the unit presents little if any obstruction to the handling of heavy equipment and does not interfere with men walking around the rotary table. When the joint is stood in the hole, little open space remains around the pipe since the two hinged partitions can stand near-vertical along the sides of the pipe, thus preventing possibility of tools or fittings from accidentally falling into the hole.

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"REFLEX"
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This is one of the complete line of Penberthy gages that meet every liquid level gage requirement.

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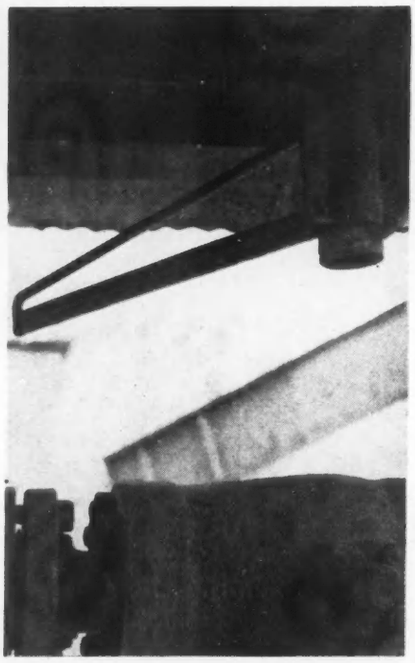
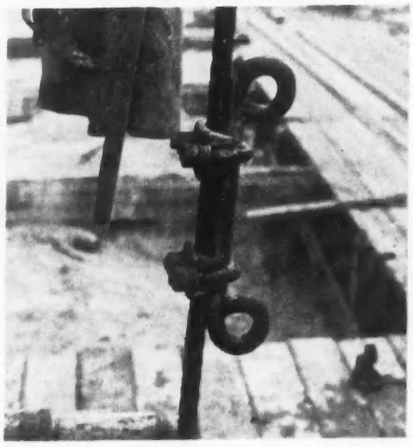


EQUIPMENT HANDLING

As an aid to lifting slush pump covers, valves and other heavy parts from slush pumps, one company makes it a practice to install in the roof above each pump-setting a small hoist arm which can be swung in a horizontal plane through 360 degrees. The arm is clamped on a short, vertical piece of extra heavy pipe which has been turned down to provide a smooth bearing surface and also leave a shoulder on the bottom to serve as a retaining collar. The support is welded to the underside of any convenient longitudinal or lateral member making up the demountable roofing overhead.

Several such arms are installed, each placed over the point where overhaul or repairs may require lifting of heavy parts. The braced, steel bar making up the arm is amply strong enough to support and carry a weight suspended beneath a light trolley and is long enough to permit swinging the object out over the edge of the walkway alongside the pumps.

Eyes Aid Shift of Drum Line



WIRE LINE CARE

In order to facilitate handling of the drilling dead-line when shifting it on the drum, one drilling superintendent utilizes a small pair of "eyes" which are clamped to the line at some point between the first girt and the derrick floor. Made of sucker rod or any type of round steel rod, the foot-long device has a loop welded in each end and is clamped to line with a pair of cable clamps secured to its shank as shown in the photograph.

The device is a simple one, is easily and quickly shifted on the line when necessary, and permits either pulling up or down on the line with no possibility of kinking or injuring of the line itself.

LOAD BINDERS

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SMOOTH HANDLE STEEL LOAD BINDER
MIDGET (1 swivel) ¼" chain
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MALLEABLE IRON LOAD BINDER Heat Treated
LONE STAR No 1—14 lbs. (2 swivels ½" and ⅝" chain
LONE STAR No. 2—16½ lbs. (2 swivels) ½" and ⅝" chain
DROP FORGED LOAD BINDER Heat Treated
No. 1—10 lbs. (2 swivels) ⅜" and ½" chain
No. 2—17½ lbs. (2 swivels) ½" and ⅝" chain

STEEL CONSTRUCTION WIRE STRETCHERS

No. 3—3 Pulleys, plain bearings, ⅜" rope
No. 33—3 Pulleys, roller bearings, ⅜" rope
No. 4—4 Pulleys, plain bearings, ⅜" rope
No. 44—4 Pulleys, roller bearings, ⅜" rope
No. RR—4 Pulleys, roller bearings, ½" rope

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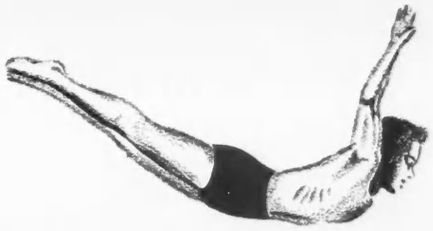

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WILL NOT ACCIDENTALLY ENGAGE—POSITIVELY CANNOT REPEAT
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This Unit is designed and built to satisfy completely the demands of the Drilling Industry. No destructive shocks and impacts—long, predetermined stroke, (42-in.). Fast, fully automatic action. Interchangeable with all other GEMCO models.
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Need not be disturbed when removing or replacing Cathead Unit—a time-saving achievement common to all GEMCO models.
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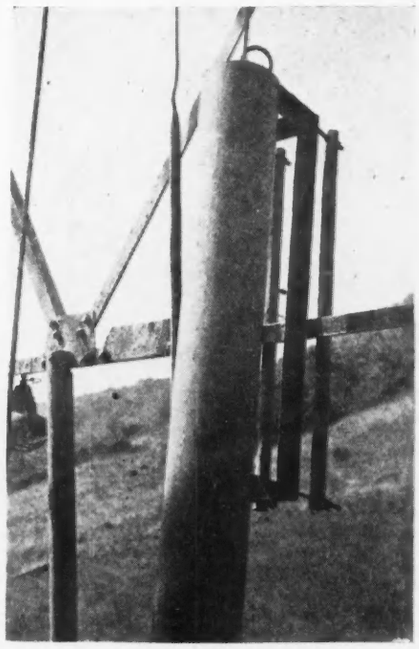
Counterweight Guide Clamps to Any Rig Girt

RIG FLOOR EQUIPMENT

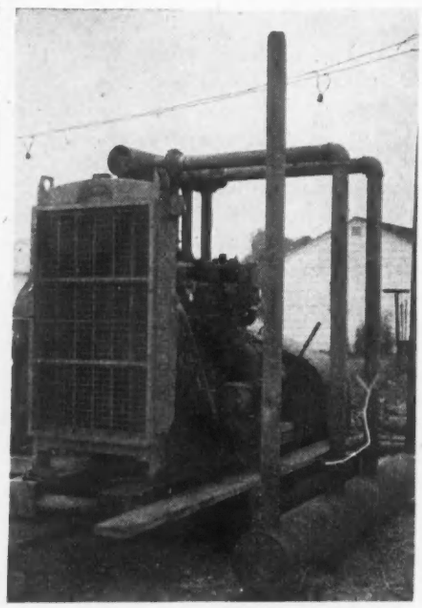
Making a tong counterweight guide that is adaptable to practically any type or size drilling rig has been accomplished by the drilling department of one company. Common to many rigs is the use of a long piece of large-size casing which is stood up inside the derrick and in which the tong counterweight can move up and down without danger of its injuring workmen on the floor. Ordinarily, these pipes were lashed or bolted to any convenient girt or rig member. On this installation, however, a pair of angle iron racks was attached to the upper and outer end of the guide pipe. These racks permitted clamping of the pipe to the lower girt as shown.

About five feet long, the rack automatically compensates for any difference in height of derrick floor or for any slightly different rig hook-up that might be desired when shifting to different rigs. The device utilizes only four long bolts to attach it to the rig, which is more desirable than welding or fabricating to adapt it to individual rig conditions.



Muffler System Requires Little Space

EXHAUST LINES



In order to dampen the sharp bark of engine exhaust one drilling contractor operating in a congested town-lot area utilizes a type of muffler which affords a maximum of travel for the exhaust gases, yet which is compact for easy dissembly and hauling. Exhaust gases first pass through a double header directly above the engine stacks, then through two 6-inch lines horizontally and downward to near the center of a horizontal ten-foot muffler made of 13-inch casing welded shut at each end. The flow is here divided, gases passing to either end to escape through ten-foot vertical stacks of four-inch pipe.

Simple in design, the exhaust system is easily broken down by disconnecting bolted flanges and unscrewing the two vertical stacks.

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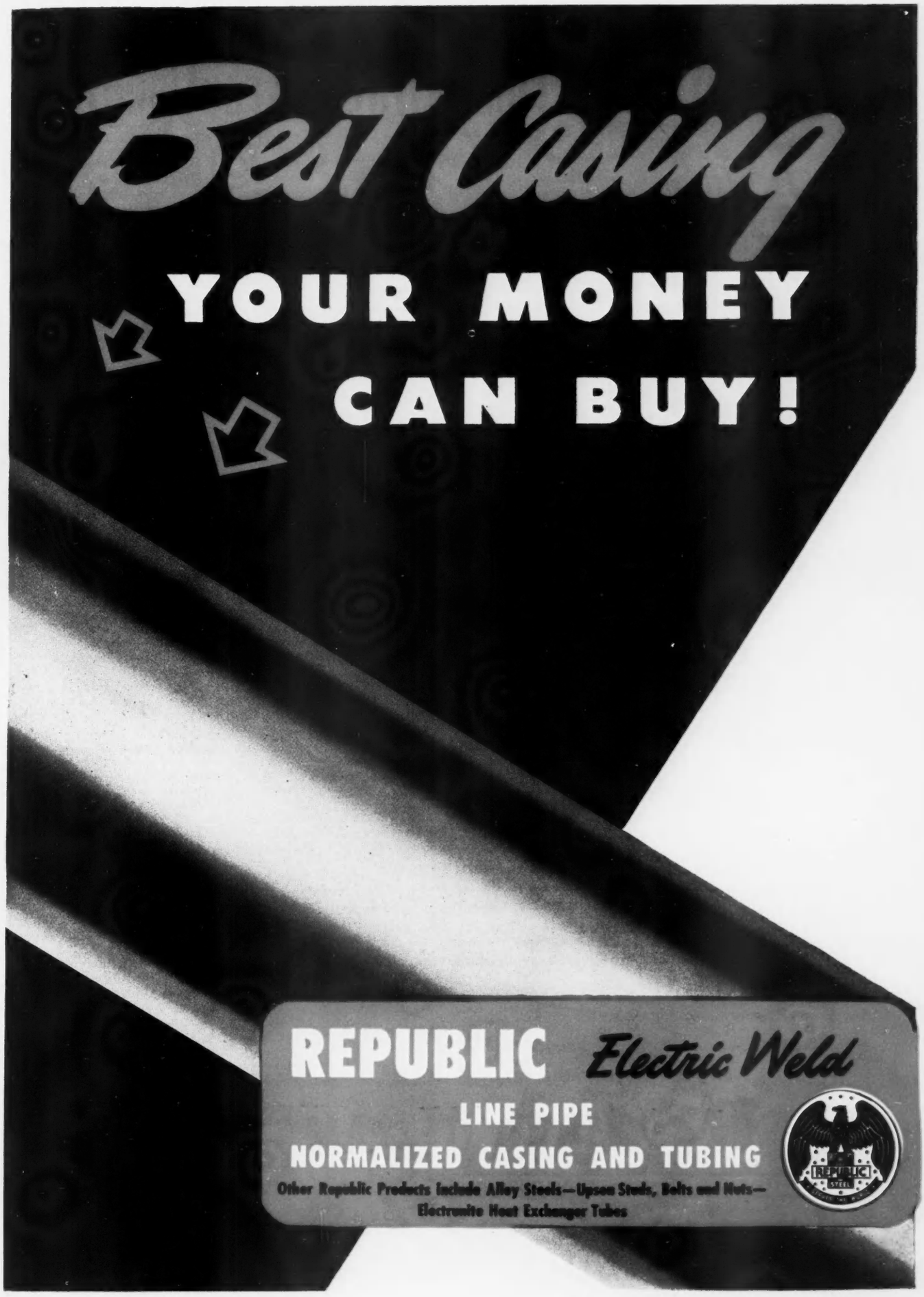
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Other Republic Products Include Alloy Steels—Upson Studs, Bolts and Nuts—
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STEEL

Coagulation in Flood Water Treatment

OF THE VARIOUS steps involved in water treatment of oil field flood waters, coagulation is probably the most important, not only from the standpoint of the quality of treated water, but also economy of operations.

The term "coagulation" in flood water treatment refers to the process of adding a certain compound to the water being treated, which reacts to form gelatinous precipitates which remove oil, suspended organic and colloidal matter and other solids by adsorption and entanglement. These gelatinous precipitates coalesce into coarse particles referred to as "floc," which, containing the adsorbed impurities, is removed from the water by settling and/or filtration.

The most widely used coagulants in various treatment processes are compounds of iron and aluminum; namely aluminum sulfate, potassium alum or ammonia alum, sodium aluminate, aluminum chloride, ferric chloride, ferrous sulphate, chlorinated copperas and ferric sulphate. Of these compounds, alum is the most widely used for coagulation in flood water treatment.

Addition of the coagulation compound is made direct to the raw water to be treated, followed by a settling and/or filtration agitation period for floc and action and then filtration for removal of the floc and impurities it has adsorbed and entrapped. Dry pot type or wet feeds are used for introduction of the coagulant.

Aluminum Action

Aluminum or iron sulphate added to raw, untreated water for coagulation acts in three general ways: (1) formation of aluminum hydrate or ferric hydrate, which is the gelatinous flocculent precipitate referred to as the "floc," (2) formation of a positive trivalent Al or Fe ion which is effective in precipitating negative colloids and (3) formation of a negative divalent ion (SO_4) which is effective in precipitating positive colloids. In these actions, as is true of the entire coagulation process, it is very essential to have good floc formation, not only to permit proper action of the floc, but also a rapidly settling heavy floc which may nearly all be removed by settling prior to filtration. This allows maximum length filtration runs between filter backwashings.

It is an established fact that selection of the proper coagulant and the resultant action obtained by it is very strongly affected by the pH of the raw water being treated. For correct coagulation the pH value must be carefully controlled within certain limits, by the addition of alkali or acid, if necessary. The pH value range permissible for proper coagulation of a given water is dictated by the coagulant used and the character of the water being treated. The pH value for optimum coagulation depends upon whether the color and turpidity are positive or negative colloids.

Coagulation at a low pH value is effective in removing color, inasmuch as more positive ions are formed and color is nearly always present as negatively charged colloidal particles. Turpidity is also usually composed of the same type particles, however, pH control in itself isn't so important in the removal of turpidity as color, since its removal is effected by entanglement more than formation of opposite charge colloidal particles.

The proper limits should be established by analysis prior to the selection of coagulation chemicals and treatment procedure determined accordingly. If this isn't done an ineffective and incompletely precipitated floc will likely by formed which will be in a very fine colloidal state staying in suspension in the water and will not setle out or adsorb impurities.

Even though proper coagulation chem-

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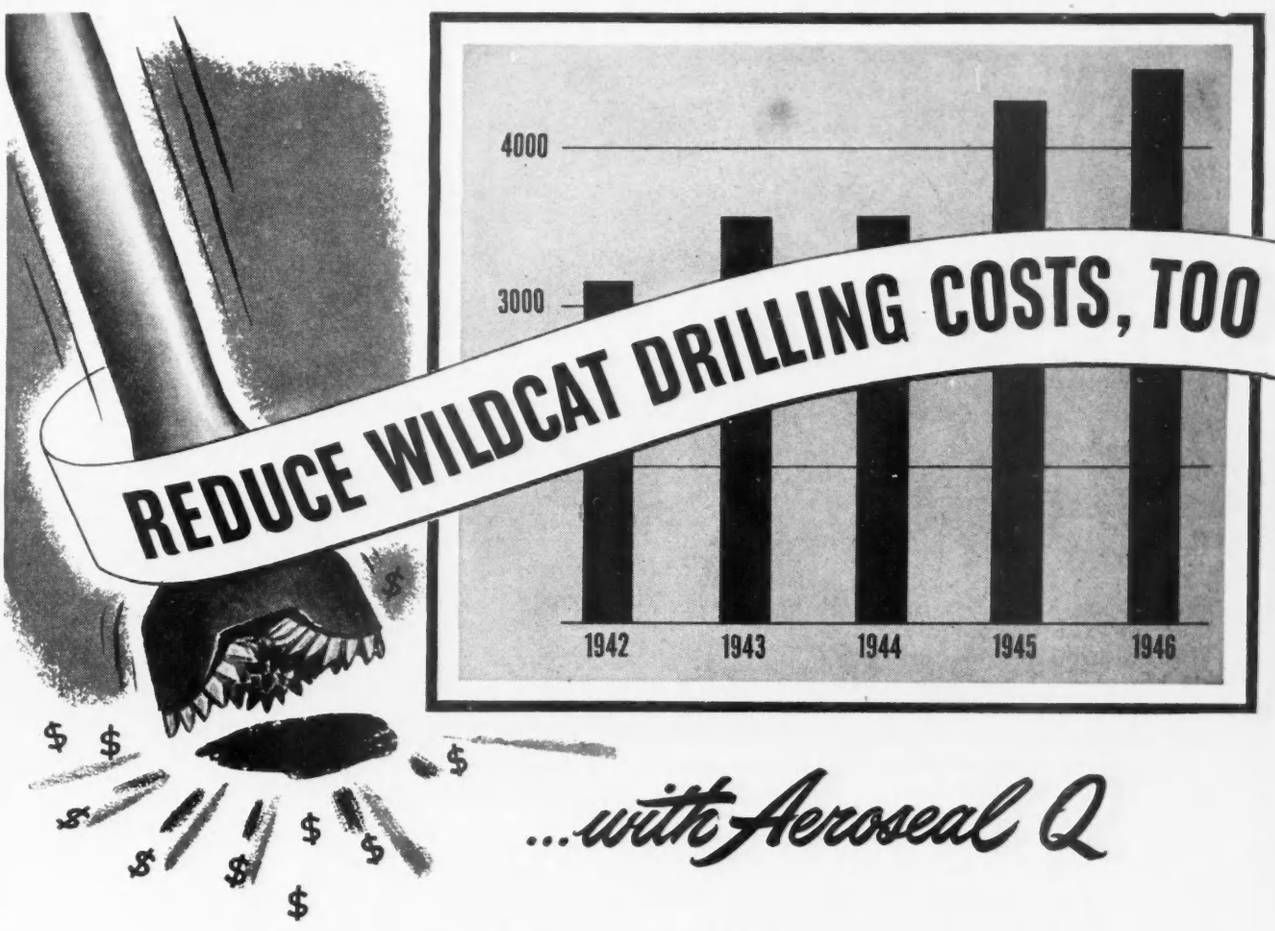

REDUCE WILDCAT DRILLING COSTS, TOO

...with Aeroseal Q

A study of the 1946 drilling program indicates that the upward trend in wildcat drilling will continue through the year, with operators energetically seeking new reserves to replace those depleted by abnormal war production.

Since time and costs are important factors in wildcat operations, good drilling mud control is imperative. Cyanamid's AEROSEAL Q* Drilling Mud Conditioning Compound can help you reduce drilling costs and time by providing more effective protection for well walls. It assures low water loss and a thin, tight mud cake under a wide variety of difficult conditions, thus greatly reducing the danger of tight hole, stuck pipe and twist-offs—and resulting shutdowns.

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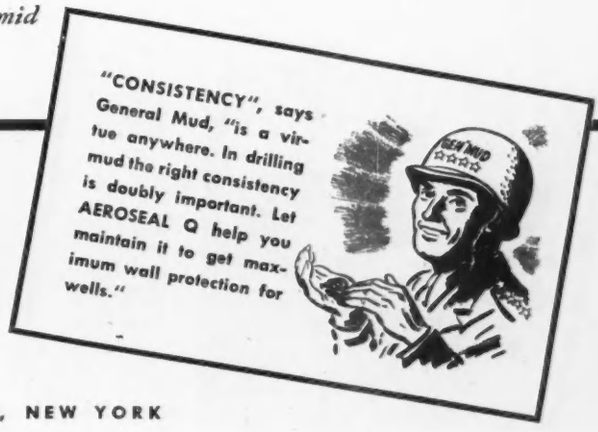
"CONSISTENCY", says General Mud, "is a virtue anywhere. In drilling mud the right consistency is doubly important. Let AEROSEAL Q help you maintain it to get maximum wall protection for wells."

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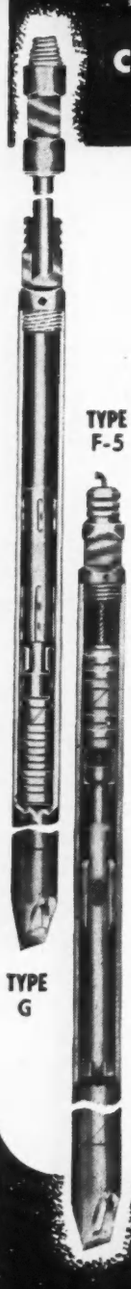

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TYPE G

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icals and procedures are accurately selected, experience has shown that haphazard introduction of chemicals to the water promulgates wastage of large quantities of chemicals and formation of a poor floc. Periodic dumping of chemicals into the coagulation basin, or the hanging of bags of chemicals in the entrance of the same do not tend to form an effective coagulant.

There are on the market many suitable chemical feeds which will feed either a dry or wet chemical with a maximum of accuracy, and help to attain desired results. In this connection mechanical agitators and other types of equipment are available to assist in correct floc formation.

Analysis of water treatment procedures adopted for various waters shows the optimum pH value in most cases lies between 5.5 and 7.0 generally speaking, for alum coagulation. Of course, some waters have higher or lower pH values for proper alum coagulation and each particular classification of water requires different pH limits for proper action of various coagulants.

In water flooding operation pH control, of course, assumes a larger role than merely that of coagulation control, in that corrosion of pipe lines and equipment and rate of injection into the oil sand are also affected by raising or lowering the pH value. Some operators may require a highly alkaline water for flooding, while others require acidic, or low pH value water. Accordingly, some plants use ferrous sulphate (copperas) instead of alum for a coagulant. The former requires a very alkaline water with a pH value of 8.8 or above for efficient results, while alum will coagulate at a lower value. Natural waters possessing a pH value of 8.8 or above are very rare, and if such a highly alkaline water is desired it will probably be necessary to adjust the pH value by addition of lime or some other alkali.

However, regardless of the type of purification process adopted, it should be remembered that the use of alum or any other acid salt tends to increase the acidity and in many cases it is necessary to add alkali following coagulation to prevent organic corrosion.

It appears that to select the proper coagulant chemical for flood water treatment, the pH of the treated clear water should be ascertained first. Knowing the desired alkalinity or acidity of the treated water should furnish a basis for coagulant selection and control of pH for the action. This coagulation action and pH control are very closely related in water treatment and one affects the other to a very strong degree.

No Houston Oil Exposition Until After One in Tulsa

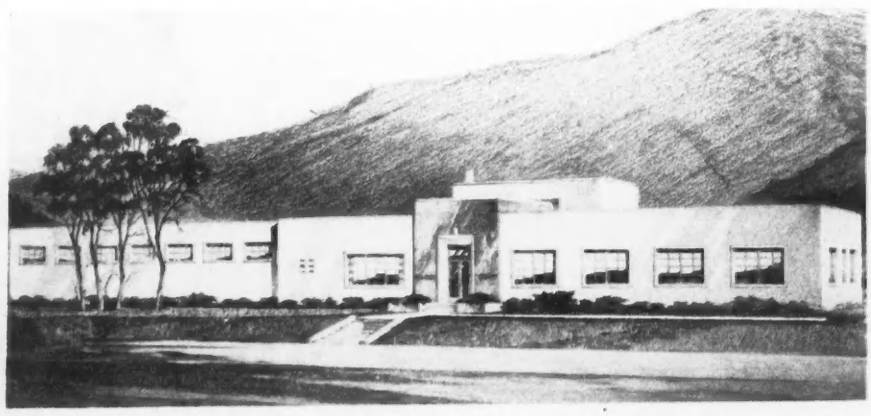
The Oil World Exposition, which before the war was held in Houston on alternate years, will not be held until a year after the International Petroleum Exposition is held in Tulsa, Chase Sutton of The Pure Oil Company and first vice president of the Oil World Exposition said last week. Sutton became ranking officer of the Houston organization when John R. Suman, president, resigned to take a Standard Oil Company (New Jersey) vice presidency in New York.

"Early in the war the Houston executive committee voted that its next show would not be held until after the war was over and then only after the first postwar International Exposition was held at Tulsa," Sutton said. "No executive committee meeting has been held since that action was taken and I have answered numerous inquiries for space giving that as our plan.

"Space actually was over-sold when we held our last prewar exposition. At that time there was considerable talk about the need for substantial increase in exposition space and since then some of the outdoor space which we used has become unavailable. So we are watching with interest the effort by directors of the Houston Fat Stock Show and Livestock Exposition looking toward larger grounds. We have had no meeting with these fat stock show officials, but if adequate plans are made for greater space, I would say definitely that the Oil World Exposition would be glad to engage in such cooperation as is possible."

On May 31 directors of the International Petroleum Exposition in Tulsa announced that due to shortage of building materials and housing accommodations no show would be held until spring, 1948.

Production-Technology Laboratory Planned



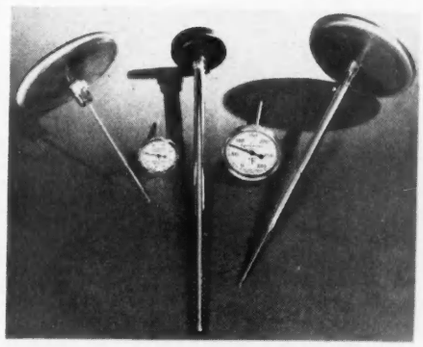
Shown above is the new Standard Oil Company of California production-technology laboratory to be built adjacent to the Murphy-Coyote oil field, four miles northwest of Fullerton. Construction of the $220,000 building will begin this month. Laboratories will be used for study of drilling methods and problems related to more efficient recovery of crude oil in established fields.

NEW EQUIPMENT LITERATURE

For additional information, use mailing card inserted opposite this page

1—Dial Thermometer

A new-type dial thermometer manufactured by Equipoise Controls, Inc., contains a bimetallic helical coil measuring element which is said to be permanently calibrated and extremely responsive. It has a stainless steel case and stem, large, easy-to-read numerals and temperature gradations on the metal dial. Unbreakable crystal glass can be furnished.

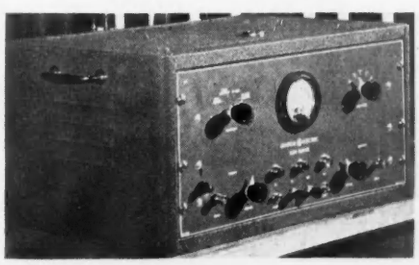


The expansion of a bimetallic coil rotates a small attached shaft and indicating pointer and forms the only moving part in the thermometer. There are no pivots, mechanical linkages or gears. Rugged construction is said to protect the thermometer against vibration, shock and rough handling. Standard ranges are available between —90° F. and 1000° F. Laboratory thermometers are graduated in both Centigrade and Fahrenheit. An over-range protection is built in the instrument and permits the temperature to be increased 50 percent or more beyond the end of the scale range without damage to the thermometer for ranges up to 500° F. Thermometers are available in 2, 3 and 6-inch dial sizes.

(Check item 1 on coupon for more information.)

2—Vacuum Gauge

A new ion gauge able to measure or monitor continuously the highest vacuum ordinarily encountered in factory or laboratory processes has been announced by General Electric Company. Consisting essentially of a control unit and an ion gauge tube, the equipment measures pressures as low as 10-7 mm of mercury and reads directly in millimeters of mercury.



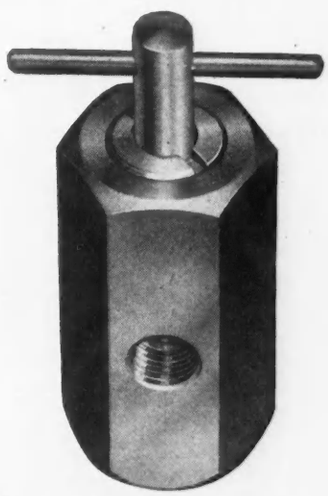
The continuous pressure indication feature permits the detection of small pressure changes and the measurement of slow pressure drifts without the inconvenience of continual adjustments. A protective circuit is provided in the control unit to turn off the gauge tube filament automatically at pressures above 10.4 mm. The control regulates filament emission against line voltagle and pressure changes, assuring stable and accurate operation.

The ion gauge control unit includes the emission regulator circuit, a stabilized voltage supply, an electronic microammeter with indicating instrument, and the filament protective relay. The front panel contains all controls necessary for operation of the ion gauge. The gauge tube is a special glass triode with a tubulation for connecting to the vacuum system.

(Check item 2 on coupon for more information.)

3—Packing Arrangement

To protect gauges and recorders where surging pressures are exposed directly to pumps, compressors and steam lines, Martin-Decker Corporation has developed a new packing arrangement for the Martin-Decker pulsation dampers.



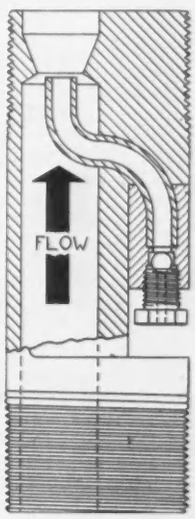
The manufacturers claim this new packing development requires no tightening; reduces stem friction; holds either vacuum or pressure; requires no gland adjustments and may be used for oil, gas or gasoline. These packings can be furnished for pressures up to 12,000 pounds and for temperatures up to 225° F. For temperatures exceeding 225° F. conventional asbestos packing is furnished.

The pulsation damper is designed for use on any pressure installation where readable indications and charts are required, such as pressure controllers, orifice meter U-tubes, draft gauges and many other types of pressure measuring instruments and pressure operated devices.

Effective control of surging pressures is accomplished by engagement of two taper threads. The stem is threaded with one type while the threads of the damper body are slightly dissimilar. During engagement these two dissimilar threads produce a small orifice around the thread lips. Simply by turning the damper stem inward or outward for pressure adjustment the spiral orifices between the threads are diminished or enlarged.

(Check item 3 on coupon for more information.)

4—Well Stabilizer



Designed to control salt water production in pumping wells where the bottom-hole pressure is very small, the well stabilizer, patented and manufactured by The Stabilizer Company, is said to increase oil production and allow the well fluid relations to remain practically static.

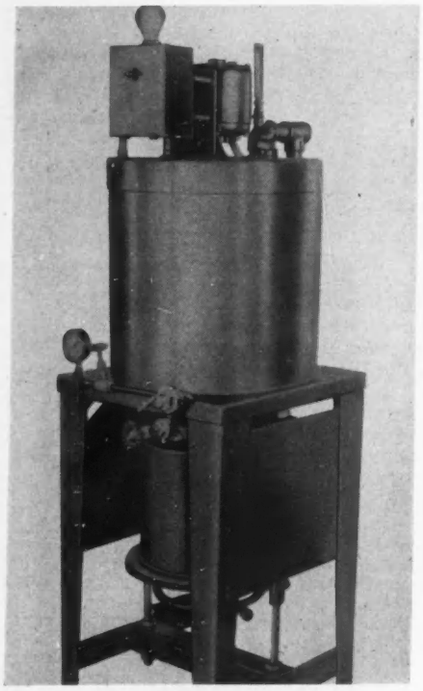
The stabilizer is merely a nippled section of the tubing which embodies a check valve of the ball and seat type and a small section of tubing inside the nipple. This unit is placed normally below the well pump in the tail pipe section, its depth depending on the fluid level in the hole. Its function is to bring in more oil with fluid pumped, thus reducing the water-oil ratio and increasing the productive life of the well. As the well is pumped, oil is syphoned into the fluid stream through the check valve and small flow tubing inside the stabilizer, hence reducing the amount of salt water withdrawn from the bottom of the hole. The only moving part is the ball valve, which is readily accessible any may be renewed by unscrewing the seat cap when the tubing is pulled.

(Check item 4 on coupon for more information.)

5—Oil Reclaimer

An oil refiner said to be capable of restoring used lubricating oil to the quality of new oil is announced by the Youngstown Miller Company, a subsidiary of Walter Kidde & Company, Inc. It is said to remove not only solid suspended impurities, but also dissolved contaminants, acids and fuel dilution as well. It is also claimed to impart anti-varnish and anti-ring-sticking qualities to the oil. The refiner is said to remove both the solid and the dissolved impurities and to employ a process that goes far beyond ordinary reclaiming methods. Re-refining employs the time-tested process of contact filtration, simulating the process used in the refining of crude oil. In this process, the dirty oil is pumped into a heating chamber under automatic float control and adsorbent

earth is added in suitable proportion. The two are then thoroughly mixed by means of an agitator and are heated by electricity. Heating and mixing are of sufficient duration to utilize fully the



adsorbent material and to drive off volatile contaminants. The removal of volatiles is hastened by the evaporative effects of a continuous stream of fresh air passed across the oil surface, permitting lower operating temperatures than would otherwise be possible. The clean oil may be piped from the filter press to any suitable storage facility or returned to engines under pressure.

(Check item 5 on coupon for more information.)

6—Air Separator

The "Airfuge" air separator has been designed and manufactured by The Swartwout Company for the primary purpose of removing moisture, oil, scale and other foreign matter from com-

pressed air. Operation of the airfuge unit is based on centrifugal principle, and it is claimed that air delivered through the separator is 99 percent free of contamination.

Upon entering the unit, the air is diverted to the inner wall of the round body where unwanted, heavier substances whirl out of the air stream and drain out the lower portion of the separator. The clean, exhausting air may be taken off by the horizontal or vertical pipe-tapped ports. The float trap is an integral unit and releases any moisture or dirt automatically. Constructed of high-tensile steel, the inner parts are of corrosion-resistant materials. The airfuge is made in three sizes for different capacities and with ranges of pipe connection sizes to suit various installation requirements.

(Check item 6 on coupon for more information.)

7—Flow Bean

PermaFlo Choke (or flow bean) developed by Schick-Siegal Industries involves a new-type construction which includes a bronze sleeve with a platinum gold thermide seal and a liner of wear-resistant porcelain. The makers claim this new choke will not "cut out" and is designed for the "hard to hold" wells with high pressures. During the past two years this choke has been under test in the Corpus Christi, Texas, area where sanding conditions are extremely troublesome. According to a test report, one PermaFlo Choke under constant operation for 18 months with tubing pressures above 1600 pounds registered less than .001 percent wear.

This new flow bean was developed

while tool design experts were attempting to line high production shell draw dies with carbide to resist wear in quantity runs in the millions. This lining material which the tool design men produced is now used in PermaFlo. The choke price will be comparable with prewar steel types due to standardization on sizes. Adapter bushings for all sizes are available.

(Check item 7 on coupon for more information.)

8—Valve

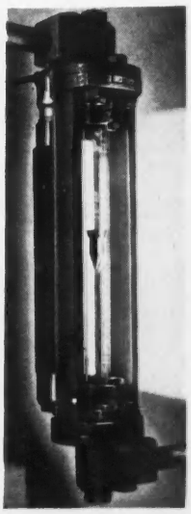
The Grove Regulator Company is now in production of a new valve called the Grove "Flex-tube" three-way valve. This new product employs a flexible molded synthetic rubber tube, encased in a bakelite body and designed to handle all types of fluids, including gases, chemicals and liquids. It is especially suited for hydraulic or pneumatic cylinder operation, the manufacturers claim. It is manually operated by means of an over-center cam, opening and closing the ports at each half turn of the handwheel.

A special self-locking feature makes

a tight shut-off over extended periods. Non-metallic in construction, it is suitable for handling highly corrosive or erosive liquids or gases. Available in ⅛-inch and ¼-inch internal pipe size, these new valves are available for working pressures up to 250 pounds per square inch, and maximum temperatures of 150° F.

(Check item 8 on coupon for more information.)

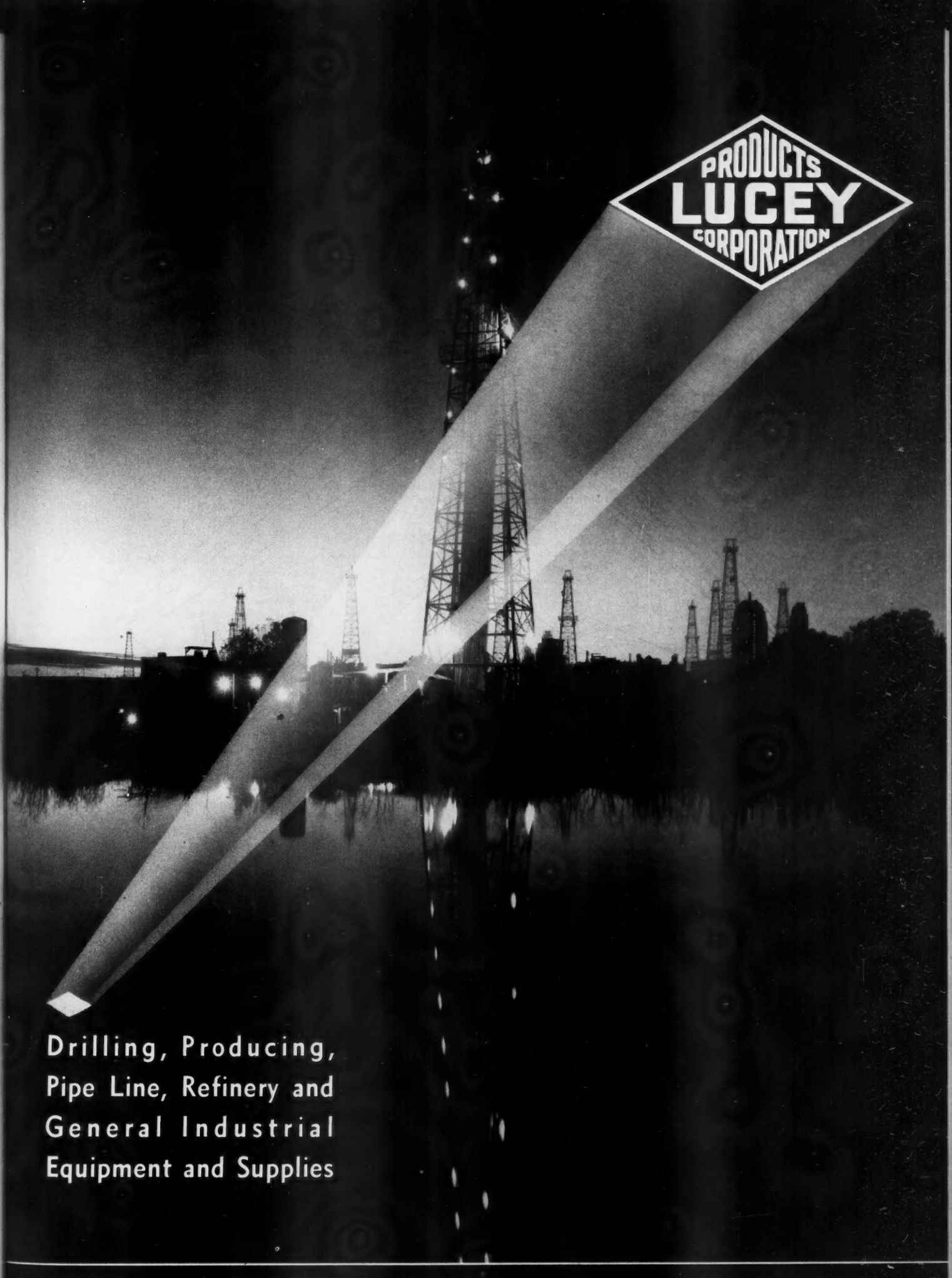
9—Lighting Device



A newly-perfected inexpensive lighting device for the new SK universal rotameter has been introduced by Schutte & Koerting Company. Since many rotameters are installed in poorly-lighted locations, its use assures easy, accurate readings. The device, a baked-enamel metal hood with narrow frontal opening, fits snugly against the back of the rotameter tube and directs a beam of light through the glass toward the operator. Thus rotor and meter scale are clearly outlined even when the metered fluid is semi-opaque in character.

The lighting unit can be easily attached to any SK 250 mm length universal rotameter by means of a bracket furnished with each device. Push-button socket, ten-foot rubber-covered attachment cord and plug are included. It uses a 110-volt tubular incandescent lamp which may be obtained from any electrical supplier.

(Check item 9 on coupon for more information.)



Drilling, Producing,
Pipe Line, Refinery and
General Industrial
Equipment and Supplies

PRODUCTS LUCEY CORPORATION

LUCEY PRODUCTS CORPORATION

OIL WELL SUPPLIES

TULSA, OKLAHOMA

NEW EQUIPMENT . . . LITERATURE

10—Soluble Plug

A soluble plug for use in pushing paraffin out of flow lines and well tubing has been developed by Kobe, Incorporated. This plug eliminates retrieving or disposing of the go-devil since it is soluble in oil, and is said to simplify the paraffin scraping practice to one of periodic injection. Simple connections may be made at the well head to allow the insertion of a plug in the lease flow line through which it can be impelled by the well fluid. The plug and paraffin are generally pumped into the lease tank where the plug dissolves.

Another application is in the cleaning of well tubing in flowing wells. In this case, a soluble plug may be forced down the tubing against the well pressure, and upon reaching bottom, the plug and paraffin are allowed to melt under the higher bottom-hole temperatures. The mixture may then be produced as liquid upon returning the well to its flowing condition. The plugs are said to be compounded strong enough to clean out the wax, yet sufficiently flexible to pass through ordinary bull plug fittings. They are commonly available in sizes of one to three inches, while other sizes may be easily obtained as needed.

(Check item 10 on coupon for more information.)

11—Malleable Cross

Thornhill-Craver Company is offering a new malleable cross with blanking plugs. This fitting is designed for use on feed water lines between the check valve and boiler feed water inlet connection. The blanking plugs are easily removed to permit inspection of the line and to simplify removal of solids precipitated from feed water.

Releasing a single bolt removes both blanking plugs. The malleable cross is also recommended for low pressure Christmas tree manifolds, or any oil, gas or water working pressures up to 500 pounds and saturated steam working pressures up to 300 pounds. It is available in 2-inch size only.

(Check item 11 on coupon for more information.)

Literature

12—Gear Reduction Units

Catalog 300 issued by The Cleveland Worm & Gear Company is a comprehensive exposition of "Speedaire" fan-cooled worm gear reduction units. Principle of the unit is full detailed by means of cutaway photographs, charts, diagrams, and engineering tables. Of standard size and 14 pages in length, the catalog gives operating data and lists advantages of the fan-cooled, gear reduction unit. Following the explanatory and descriptive material which comprises the first portion of the book, the design engineer will find carefully detailed instructions for planning installations of these units, with illustrative examples. Full information is also provided on dimensions and shipping weights.

(Check item 12 on coupon for more information.)

13—Pumping Units

John M. Mcgregor has issued his first postwar catalog to the industry. Bulletin U-231 contains photographic and descriptive material of the "Pup" portable centrifugal pumping unit and its companion, the "Utility," which is a larger model. The bulletin features all the "Mcgregor engineered" units which were used by the U. S. Army and the Russians. Included in this publication are several valuable engineering data curves, one of which is used in the determination of pipe line friction losses.

(Check item 13 on coupon for more information.)

14—Differentials

An operation and maintenance manual and service parts list for the Thornton Automatic-locking Differential has been released by Thornton Tandem Company. The publication discusses the development of the new type differential and provides a comprehensive description of the the construction and operation on the Thornton automatic-locking differential. Service notes and a complete parts list is included. The Thornton differential was originally designed as a means of giving both positive drive and differential action between the two driving axles of the four-rear-wheel drive bogie. The 32-page manual is fully illustrated and is of standard note book form perforated for use in a cover.

(Check item 14 on coupon for more information.)

15—Bulldozers

Form 9198 has been released by Caterpillar Tractor Company, introducing the company's two new bulldozers, 8S and 7S. Printed in three colors, the publication is generously illustrated with pictures showing the new bulldozers in action, and describes the features in each. Specifications on each are listed and include all shipping weights and pertinent engineering data.

Another Caterpillar publication is "Oilfield Transportation with Caterpillar Diesel Power," a new booklet, number 9367, which features the ingenious methods of moving material and supplies. The eight-page booklet portrays how bulky spudders are skidded from one location to another; how drilling engines, mud pumps and floors are hauled into position; shows the relocation of derricks; how derrick timbers, cable tool rigs, tool sheds and steel tanks are transported quickly and easily to the scene of operations.

(Check item 15 on coupon for more information.)

16—Plastic Coating

The Amercoat Division of American Pipe and Construction Company has prepared a 12-page bulletin which offers tested solutions for corrosion problems in the petroleum industry. The book consists of factual reports on actual uses and tests of Amercoat plastic coating in petroleum uses. It summarizes typical applications and tests, such as the treating of acid sludge tanks, run-down tanks, sour crude, gasoline, distillate, and other storage tanks, wash tanks, drilling equipment, tank cars, etc.

(Check item 16 on coupon for more information.)

17—Electrodes

Hobart Brothers Company has released a strip folder, DM-710, announcing its postwar line of arc welding electrodes. The pocket size folder furnishes description, application, procedure, physical properties of deposited metal, and sizes available for each type electrode in the new postwar line.

(Check item 17 on coupon for more information.)

18—Rotary Drive

The National Supply Company has published a bulletin describing the newly developed Ideal type "E" direct rotary drive. This 12-page Bulletin 319 illustrates in blueprint form the unitized arrangement of engine, gear boxes, shafts and rotary with over-all dimensions shown. Descriptions of special features of this rotary drive are given and large, clear photographs show construction and arrangement. Of special interest is the description of the Bendix hydraulic control which is associated with this unit and is fully illustrated and explained.

(Check item 18 on coupon for more information.)

LIKE A CHAMPION MARKSMAN..

FORM-SET ROPE IS *Relaxed*

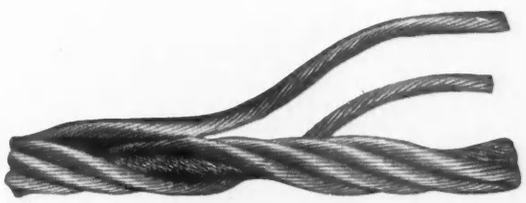
The sharpshooting rifleman can't afford tension. Watch him as he sights on the bull's-eye. Keen, alert, a study in concentration, he's nevertheless relaxed. The slightest twitch or jerk as the trigger is squeezed would throw him off line.

Much of that same relaxed effect is present in Form-Set rope—Bethlehem's preformed. Wires and strands have been helically shaped in advance, before being laid in the rope. They retain this helical shape; they have no urge to uncoil. This is because the preforming process coaxes the tension from each individual strand.

Broken Form-Set wires lie perfectly flat; they don't bush out to snag on hands or clothes. You can see for yourself by cutting some Form-Set rope. No flying apart at the ends. You have to *lift* each strand or wire to get it apart from its mates.

But the most valuable feature of preformed rope is its great flexibility. Being relaxed, it naturally bends more easily over your sheaves and drums. This means far less bending fatigue . . . and that, in turn, means longer life . . . greater economy.

Every grade, size, and type of Bethlehem wire rope is available in the Form-Set construction. Get full particulars from the nearest Bethlehem office or distributor.



A cut section of Form-Set rope. The strands have been purposely lifted apart. They can't spring up by themselves, for the tension, the urge to uncoil, has been removed by preforming.

When you think WIRE ROPE

think BETHLEHEM

Patent Roundup

A Regular Feature of THE OIL WEEKLY

In this column are reviewed patents dealing with drilling, producing and pipe line branches of the oil industry that are issued by the United States Patent Office.

Patents recently issued by the United States Patent Office at Washington, D. C., include those listed below.

Printed copies of the patents listed are furnished by the patent office for 10 cents per copy and can be had by addressing the Commissioner of Patents, Washington, D. C.

Sucker Rod Connection

John H. McFarlane, El Dorado, Ark., is inventor of this unassigned patent (No. 2,400,041).

This sucker rod swivel contains a chamber with an opening in one end, a piston in the chamber having a stem extending outwardly through the opening, with a head on the stem. The head and body are locked against relative rotation by a removable sleeve of noncircular design fitting over the head and the upper part of the body.

Flowmeter

An instrument (No. 2,400,097) designed and patented by Nathaniel Brewer of Newtown, Penn., has been assigned to Fischer & Porter Company, Hatboro, Penn.

In a vertically tapered metering tube is a float-member with an axial bore throughout which receives and slides upon a guide rod provided with helical threads. A nut retained within the bore of the float-member and hollowed to receive the guide rod permits limited free vertical movement along the rod and subsequent rotation upon vertical acceleration of the float-member in response to a change in flow of fluid or gas within the metering tube. If the flow of fluid remains constant the member assumes a stable position without visible oscillation, but will rotate up or down the rod to a new position as the pressure varies.

Multiple Orifice Throttling Device

Chester R. Mockridge of Nutley and Robert W. Allerton of Short Hills, N. J., have patented this device (No. 2,400,161) and assigned it to Worthington Pump and Machinery Corporation, Harrison, N. J.

This multiple pressure reducing orifice consists of a cylindrical housing containing a longitudinal bore providing an inlet and outlet, a spool formed of a single piece of metal placed longitudinally in the housing, a number of annular flanges formed on the spool, each having a diameter about equal to the interior diameter of the housing. Each alternate flange has a part of its perimeter cut away to form orifice passages. Turbulence chambers are formed between each adjacent pair of flanges and communicate one with another so as to change the direction of the flow of fluid through the orifice. The spool is secured to the housing and its ends terminate some distance inward from the ends of the housing.

Wide Range Flow Meter

Sten Elowson, Brooklyn, has patented this instrument (No. 2,400,108) and assigned it to Pittsburgh Equitable Meter Company of Pittsburgh.

In this flow meter there is an arrangement of a tube having a uniform bore and a parabolic slot in its wall, a piston that obstructs the bore and contains a second tapered bore and a second piston to obstruct the flow of fluid through the bore. An escape passage is provided for fluid that passes the second piston into the tube. Metering is accomplished by limiting the movement of the second piston in the tapered bore.

Surge Valve

A valve device (No. 2,400,911) to control the path of flow of a viscous liquid of varying temperature has been patented by Harry T. Booth, Dayton, Ohio.

The device includes a casing with an inlet opening and main and by-pass outlets, a normally closed valve controlling flow of liquid from inlet to main outlet, a valve arrangement closing toward the inlet and controlling fluid from the inlet to the by-pass outlet. The normally closed valve remains closed by liquid pressure means as long as the pressure of the liquid in the inlet exceeds a predetermined value but opens when the pressure reduces beyond that value. This is double-checked by a thermal means which operates by the temperature of the liquid to prevent the valve's being opened by the liquid pressure operated device as long as the temperature of the liquid is below a predetermined degree.

Purifying and Deodorizing

A method (No. 2,400,515) of treating crude oil has been patented by Floyd A. Kent and Clarence W. Patrick of Midland, Michigan, and is not assigned.

Crude oil is heated to approximately 110° F., then mixed with a predetermined volume of hydrated lime and water, which flows readily. A predetermined amount of chlorine acid is added to the mass which is then agitated for a predetermined length of time.

Brake Cooling Mechanism

This patent (No. 2,400,225) has been issued to Carolous L. Eskergian of Detroit and by him assigned to Budd Wheel Company, Philadelphia.

A rotary brake disc has spaced braking surfaces connected by duct forming vanes and a brake show for engaging the shoe. The means used for delivery of cooling fluid to the face of the disc adjacent to the shoe and also to the opposite face of the disc is simultaneously used to direct fluid through the discs in cooling contact with the vanes.

Lock Device for Well Tools

Reuben C. Baker, Coalinga, Calif., has assigned his patent (No. 2,400,970) to Baker Oil Tools, Inc., Vernon, California.

This is a patent for a casing packer run on tubing. On a mandrel, slide packer and slip assembly. A horizontal and a vertical slot in the mandrel may be engaged by a pin run through the tubing, which slips from the horizontal to the vertical slot at a quarter left turn of the mechanism. When packing assembly is lifted the slips impinge against the wall of the casing and the rubber packer at bottom of the assembly flares as long as tension is maintained.

Diesel Power Progress Described by McKinney

The rapid expansion of the diesel engine industry during World War II is only a start toward the place diesels will take in supplying power for industry in the future, A. W. McKinney, vice president of the National Supply Company, told delegates to the annual meeting of the Oil and Gas Power Division of the American Society of Mechanical Engineers in Milwaukee last week.

"Diesels proved themselves in practically every type of wartime operation," McKinney said. "Their dependability and economy proved that for many peacetime uses they have distinct advantages over other kinds of power, and the backlog of orders for diesels show that this lesson has been well learned."

All branches of the oil industry offer opportunities for diesels, McKinney declared, pointing out that the industry responsible for the birth of the diesel engine, through its production of the engine's fuel, has been slow in adopting it to supply power for its own operations.

There also is an important indirect reason for this final appreciation of the value of the diesel engine in the oil industry, he continued.

"It is being learned that the natural gas is not so cheap as has been believed. New uses found for natural gas heretofore used by many oil operators have increased its value to a point where diesel fuel can offer it very stiff competition," McKinney said. "Diesel fuel has not become cheaper, but natural gas has become more valuable."

Important improvements in the design of diesels have been the improved power-to-weight ratio which allows greater mobility of the engines, and the production of dual-fuel equipment which allows an engine to be changed from diesel fuel to gas, or vice versa, he said.

"Another reason why diesels will become more widely used in drilling operations is the increasing demand for heavy-duty rigs for drilling 10,000 feet or deeper. It has been found that one of the most important economies is the use of a multiple arrangement of diesel engines to provide the required combination of operating economy, power and portability."

Marine and off-shore drilling operations also are stimulating diesel engine demands. Transportation of the fuel is an important consideration in these operations, he explained, and in this respect diesel fuel has a distinct advantage and economy.

McKinney also pointed out that the foreign oil industry will become one of the diesel engine's most important markets because of the future expansion of the foreign industry.

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There's no pumping up . . . no adjusting . . . no leaks. The fluid system is factory loaded and permanently sealed—fluid remains in the unit even during transportation and storage. Installation is fast and fool proof—accuracy is guaranteed.

The "Sealtite" Drilling Control

The master recording instrument for every job where you want complete control of all drilling factors. Indicates and records weight, mud pressure, torque and shows rotary table speed. Illuminated for easy night reading. Has capacity to handle 20,000-foot wells. Gauge readings are smooth, sensitive, always accurate.

The Clipper "Sealtite" Weight Indicator

A portable weight indicator for ordinary drilling or production work. "Sealtite" construction combines factory calibrations and elimination of the possibility of leaks with maximum portability. Has vernier gauge for extremely sensitive weight control when fishing, milling, etc.

The Unitized Mud Pump Gauge

Accuracy, sensitivity and smooth, easy readings make this the ideal portable gauge for measuring slush pump pressures. Mechanism runs in an oil bath, eliminating rust or corrosion. Large numerals stand out clearly from 30 feet or more, and readings can be made by simply noting position of gauge hand. Vernier retard movement covers both low and high pressure ranges. "Unitized" is available in one, three or five thousand pound capacities.

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SAN JOAQUIN VALLEY: A. F. McQUISTON, BAKERSFIELD, CALIFORNIA
MID-CONTINENT DISTRIBUTOR: REED ROLLER BIT COMPANY, HOUSTON, TEXAS

Crude Production Increases Sharply; Runs to Stills Cut Back Moderately

U. S. Crude production increased sharply during the week ended June 8, while runs to refinery stills were cut back moderately from the runs of the previous week.

Withdrawals of over 1 million barrels were made from gasoline stocks, as output of that product was reduced during the week, while increases in the burning oil's production brought their combined stocks up over 2 million barrels. Stocks of the heavy fuel oil now stand at their highest mark for the year, while gasoline stocks are at their lowest. These trends were revealed in the latest weekly report of The American Petroleum Institute.

Crude oil production averaged 4,896,000 barrels daily during the week, an increase of 140,000 daily over the previous week's output, and 43,000 daily more than was produced in the comparable week of last year. This current crude production is only 48,000 barrels a day less than the all-time peak of 4,944,000 barrels produced daily during the second week of July of last year.

Crude runs to refinery stills during the week averaged 4,827,000 barrels daily, a decrease of 16,000 daily from the previous week's runs, and 65,000 daily less than the runs of the like week of 1945.

Refinable crude stocks amounted to 220,885,000 barrels on June 1, as reported by the Bureau of Mines in its latest stocks report. This report shows that 1,329,000 barrels were withdrawn from crude stocks during the preceding week, bringing stocks down to a total that is 3,194,000 barrels less than was on hand one year before.

Gasoline production, including natural gasoline blended at the refineries, amounted to 13,864,000 barrels during the week, a decrease of 429,000 barrels from the previous week's output and 1,268,000 barrels less than was produced during last year's week. Stocks of gasoline, finished and unfinished, were reduced 1,101,000 barrels during the preceding seven days and ended the period at 94,146,000 barrels, which is 6,660,000 barrels more than was on hand a year ago.

Distillate fuel oil production for the week, after increasing 371,000 barrels from last week's, totaled 5,441,000 barrels, an increase of 504,000 barrels over the output of the comparable week of 1945. Additions of 786,000 barrels were made to distillate fuel stocks, bringing them to 33,958,000 barrels, which is 3,782,000 barrels more than was held one year ago.

Residual fuel oil output for the period amounted to 9,015,000 barrels, an increase of 786,000 barrels over the previous week's production, but 404,000 barrels under last year's week. At the end of the week residual fuel oil stocks stood at 45,938,000 barrels, showing an increase of 1,530,000 barrels during the seven days. Current residual stocks, high for this year, exceed those held last year by 6,562,000 barrels, or 16.7 percent.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
Highs:												
1941	[1]4,337	11-22	4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	47,861	11-14	95,857	1- 8
1943	4,436	11-13	4,331	12- 4	245,752	6-29	94,159	3-20	47,187	11-27	72,881	1- 2
1944	4,762	9-30	4,798	12-30	240,992	1- 1	89,162	4- 1	48,162	10-28	64,744	10- 7
1945	[1]4,944	7-14	[1]5,140	8-18	227,554	10-13	99,012	3-24	45,341	11-17	56,074	1- 6
1946	4,896	6- 8	4,857	5-25	229,430	3- 2	105,233	2-16	35,199	1- 5	45,938	6- 8
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 3
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,382	4-12	90,914	7-13
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-18	232,191	1- 9	68,182	10-16	30,732	4- 3	57,596	12-25
1944	4,357	1- 1	4,228	2-12	220,258	9- 9	76,302	1- 1	30,232	4-19	49,737	3-18
1945	3,621	10- 6	3,409	10- 6	[4]211,813	8-25	70,791	10-13	26,483	3-17	38,548	5-26
1946	4,403	3- 9	4,498	1-12	218,193	1- 5	94,146	6- 8	25,131	3- 9	37,289	4- 6

TRENDS OF 1945 AND 1946

Trends in Week Ended	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1945:									
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,561	9,252	51,119
February 24	4,777	4,803	219,351	15,500	95,972	4,958	28,753	9,084	46,713
March 31	4,781	4,677	223,782	14,644	98,758	4,548	26,889	9,184	41,745
April 28	4,805	4,780	223,474	14,633	94,068	4,636	28,273	9,379	39,813
May 26	4,887	4,950	222,831	15,194	89,121	4,667	29,184	9,670	38,548
June 30	4,908	4,999	220,781	15,546	86,472	4,910	32,213	9,077	40,488
July 28	4,930	4,996	218,507	16,106	86,008	4,598	36,071	9,586	42,283
August 25	4,982	4,931	[4]211,813	15,986	84,693	4,960	39,782	9,356	46,201
September 29	4,357	3,812	222,387	11,913	79,552	3,940	43,689	7,047	46,853
October 27	4,273	4,838	224,230	15,530	74,335	5,159	43,472	8,691	45,943
November 24	4,469	4,648	219,363	15,681	83,184	4,802	45,258	8,800	47,474
December 29	4,474	4,729	218,918	14,546	95,205	5,055	36,651	8,765	42,447
1946:									
January 5	4,548	4,651	218,193	14,488	98,494	5,293	35,199	8,867	42,371
January 26	4,626	4,553	220,544	13,622	101,737	5,720	29,498	8,411	39,722
February 23	4,714	4,595	226,699	13,175	104,709	5,728	25,398	7,913	39,290
March 30	4,425	4,684	224,994	13,896	104,715	5,357	28,240	8,738	37,746
April 27	4,672	4,685	224,443	14,228	99,631	5,568	30,466	9,204	39,404
May 25	4,759	4,857	222,214	14,322	95,769	5,463	32,973	8,908	43,368
June 1	4,756	4,843	220,885	14,293	95,247	5,070	33,172	8,881	44,408
June 8, 1946	4,896	4,827		13,864	94,146	5,441	33,958	9,015	45,938
June 9, 1945	4,853	4,892	[5]224,079	15,132	87,486	4,937	30,176	9,419	39,376
Change:									
In Week	+140	—16	—1,329	—429	—1,101	+371	+786	+134	+1,530
In year	+43	—65	—3,194	—1,268	+6,660	+504	+3,782	—404	+6,562
In year	+0.9%	—1.3%	—1.4%	—8.4%	+7.6%	+11.2%	+12.5%	—4.3%	+16.7%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922 due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, June 2, 1945

Carter Employes Are Honored For Work on Wartime Devices

Awards for research on secret wartime devices were received from the United States Navy by The Carter Oil Company and 60 of its employes.

Official notification by the Navy Department stated the Carter research workers were instrumental in helping develop the VT or proximity fuse, a device which automatically explodes a projectile when it comes within range of a target.

The VT fuse has been described by military authorities as ranking second only to the atomic bomb in its contribution to Allied success in World War II.

In addition to those workers who received the Naval Emblem, Naval Ordnance Development Award certificates were presented to Dr. A. B. Bryan, H. F. Moses, Dr. P. S. Williams, R. W. Gemmer, F. G. Boucher, Ben W. Sewell, Dr. E. M. McNatt, Dr. Norman Ricker, R. S. Dahlberg, Jr., V. A. Acheson, C. C. Nash, Jr., R. H. Blood and P. H. Foster.

Water Flood Meeting Set

The next meeting of the Water Flood Operators is scheduled June 19 at the Booth Hotel in Independence, Kansas. The meeting will begin with a dinner at 6 p.m. Topic for discussion will be "Well Spacing, Flooding Pattern, and Notes of Water Injection."

☆ California

East Los Angeles Field Well Has 1200-Barrel Flow on Test

Well in East Los Angeles field flows 1200 barrels of 36-gravity oil on test; Standard to deepen abandoned wildcat east of Santa Fe Springs; blowout occurs, circulation lost and drill pipe stuck at 10,904 feet in Kettleman Hills Middle Dome wildcat; 12,000-foot wildcat in Kings County reported running casing for production test; Corning gas well flows 6 million cubic feet; wildcatting active throughout the state.

Los Angeles County: In the East Los Angeles field, Richfield Oil Corporation is preparing to complete Edison 1 in 16-2s-12w. This will be the third producer to be brought in by Richfield in this field since its discovery. On a test of the interval 7964-8000 feet the well flowed 1200 barrels of 36-gravity oil. Casing has been set at 7960 feet. The well is a few hundred feet southeast of the company's Vail 1 producer in Sect. 15. Keller 1, in Sect. 9, which was expected to be the third well on production, continues to core ahead at 8390 feet but is scheduled for early completion. Vail 2 in Sect. 16 also should be brought in shortly. Chanslor-Canfield Midway Oil Company's outpost test, Bandini 1 in Sect. 23, is coring at 10,876 feet.

In the Leffingwell area, Standard Oil Company of California is rigging up to see if it can make a water well of its Lewis Community 1 in 11-3s-11w. Company needs water for its El Segundo refinery. This well was drilled last year to a total depth of 12,184 feet and produced some oil on the pump, but not in commercial quantities. In 4-3s-11w, just off the eastern end of the Santa Fe Springs field, Standard will further extend its exploration activities in this general area by deepening the old Vanda Petroleum Corporation Vanda 1, abandoned in October, 1936, at 8060 feet.

Orange County: One of the 2 wildcats being drilled in the Richfield district was abandoned. The Texas Company's Vejar 1 in 35-3s-9w found nothing worth testing in drilling to 3564 feet. Drilling ahead, however, is Stern 1, a joint test in Sect. 33 of Basin Oil Company and Wilshire Oil Company, following recovery of drill collar fish at 1966 feet.

Kings County: A blowout has occurred in Standard of California's Kettleman Hills Middle Dome wildcat, 73-30V in 30-23s-19e. After blowing wet gas carrying distillate and mud for some time, the well was killed with 105-pound mud. However, circulation was lost and at last reports operator was pumping in cottonseed hulls in an attempt to regain circulation. Drill pipe is stuck at 10,904 feet. Total depth is 10,921 feet.

In the Tulare Lake area, Kings County Oil Company's von Glahn 1 in 4-23s-22e, deepest prospect well in the San Joaquin Valley, is reported to be running casing for a production test. Total depth is 12,004 feet.

Kern County: Recent efforts of 2 companies to develop production in the Devils Den area have proved disappointing. In 11-25s-18e, Wilshire Oil Company has abandoned Kalloch 1 at 3100 feet. Side wall samples indicated slight oil showings. In 20-25-19, Barnsdall abandoned its second try in a month, Bates 2, which logged insufficient sand to justify a test. Total depth was 1551 feet.

Chanslor-Canfield has staked a location on fee land in 35-31s-26e for a test well on the northeasterly flank of the Paloma field.

In the Santiago area of the Midway-Sunset field, Richfield has completed Leutholtz A-8 in 22-11n-23w flowing 996 barrels of 18.4-gravity oil, 17 percent cut, through two ½-inch chokes. Total depth is 3500 feet. Company has foundation in for Leutholtz A-9, an easterly extension test.

Wildcatting continues very active in the county, with 6 new projects getting under way in a week.

Tehama County: The Superior Oil Company has completed Russell 1 as a gas well in the Corning area, 12-24n-3w, flowing 6,050,000 cubic feet through a 45/64-inch choke. Production is from a 50-foot interval at 1520-1570 feet.

Monterey County: Texas will drill a wildcat in the Salinas Valley. Aurignac 1 will be drilled near Los Lobos in 4-23s-10e. About 2 miles west, Chanslor-Canfield is drilling San Ardo 6-G1 in shale below 2890 feet.

Fresno County: On the Turk anticline in 4-17s-15e, Bankline Oil Company, is preparing to drill a wildcat not far from one of the several wells drilled and abandoned by Western Gulf Oil Company.

Ventura County: Tide Water Associated Oil Company's McGonigle 21, Ventura Avenue field, established the highest daily flow rate of any well completed in California this year. The well is in the D-7 zone and flowed at the rate of 2577 barrels net oil per day of 29.7-gravity through 24/64-inch bean from a total depth of 12,557 feet. The well flowed at the daily rate of 3544 barrels for 5 hours through 36-64-inch bean before being cut back. This well established a daily gas potential of 1,908,000 cubic feet.

Oregon

Richfield Oil Corporation has abandoned Barber 1, wildcat near Portland at 7885 feet. This is third test to be abandoned in the Pacific Northwest in the last month.

Wells Completed in the United States in Week Ended June 15, 1946

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second or third issue of each month. More detailed data on wildcats published in third or fourth issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS This Week	Last Week	Cumulative This Year	Cumulative Last Year
Alabama													7	13
Arizona													1	
Arkansas	3				3				2	2	5	3	79	76
California	40	1			41				6	6	47	42	873	968
Colorado												3	51	12
Florida									2	2	2		10	9
Georgia													2	3
Illinois	19			5	24	1	1		2	3	28	39	908	746
Indiana	8			1	9				1	1	10	20	190	133
Iowa														1
Kansas	20	7		8	35	2	1		3	4	41	47	929	706
Kentucky	4			3	7				1	1	8	8	257	207
Louisiana	15	3		7	25				4	4	29	16	581	448
North Louisiana	11	3		2	16				3	3	19	7	376	143
South Louisiana	4			5	9				1	1	10	9	275	305
Michigan	3			4	7		1		9	10	17		329	342
Mississippi	3				3	1					4	5	102	173
Missouri									1	1	1		12	19
Montana												6	99	85
Nebraska														2
New Mexico	11	1		1	13						13	5	184	209
New York	15		10		25						25	26	487	462
Ohio												8	482	387
Oklahoma	31	1	1	7	40	2	2			2	44	39	1,133	1,058
Oregon													1	
Pennsylvania	27		15		42						42	53	1,395	1,312
Tennessee													2	2
Texas	70	11		24	105	1	2	1	27	30	136	187	3,661	3,296
E.Tex.Bor. Co.'s		5			5						5	2	70	33
Rest of E. Texas	5			2	7				1	1	8	16	251	99
North Texas	15	2		13	30	1			7	7	38	54	1,071	749
W. Central Tex.	4			3	7			1	5	6	13	9	273	212
West Texas	21	1		2	24		1		3	4	28	43	752	864
Tex. Panhandle	2	1		1	4						4	13	192	268
G. Coast, Upper	4			3	7				7	7	14	11	314	327
G. Coast, Lower	14	2			16				2	2	18	22	491	472
Southwest Texas	4				4		1		2	3	7	14	185	230
S. Central Tex.	1				1						1	3	63	42
Utah													2	
Washington													1	
West Virginia												13	313	351
Wyoming												2	66	62
Total U.S.	269	24	26	60	379	7	7	1	58	66	452	519	12,145	11,082

* Includes distillate wells. † Includes salt water disposal wells.

☆ Oklahoma

Coon Creek Strike Waiting for Tanks After Gauging Good Flow

Coon Creek oiler waiting for tanks after big flow; Northeast Hoover field of Garvin County given extension; Antioch offset flows on test; Dearing stakes Wilcox sand test near Maysville; West Moore sector shows 3 different pay zones; shallow gas field opened in Okfuskee County.

Coon Creek Area: Sinclair Prairie Oil Company has brought in the fourth producer of the Coon Creek area, situated along the Oklahoma - Logan County border. It is the Cooper 1, NW NE NW 3-14n-1w. On initial test the well flowed 581 barrels of oil in 11½ hours through ¾-inch choke from the second Wilcox sand at 5987 feet. Wilcox was topped at 5942 feet, and casing was set at 5950 feet. The well is now waiting on tanks. It is in an area that eventually may be united with the Northeast Arcadia pool.

Garvin County: A slight southeast extension of the Northeast Hoover field has been given by Walter Neustadt's Grant 2, NW NE NE 25-1n-1w. It is making good showings and appears to be an oil well. Perforated with 200 shots at 955-85 feet, it cleaned into pits for 12 minutes. Drilled to 1700 feet, pipe was set near the bottom. Testing will continue. Neustadt's Grant 1 was completed a month ago as a gasser, 1½ million cubic feet of gas a day. Location for the Grant 2 is on a farmout from Magnolia Petroleum Company.

Cities Service Oil Company has a discovery in the East Antioch area with Wallace 1-B, NW NW SW 18-3n-1w. Bromide was topped about 130 feet high, at 5130 feet. Drilled and cored to 5327 feet for saturation, on a drill-stem test at 5314-27 feet, the well started gassing in 2 minutes and was estimated at 1 to 2 million cubic feet daily. Oil started in 8 minutes and the well flowed for 11 minutes at the rate of 30 to 35 barrels hourly, 36.5-gravity. Crew is now penetrating deeper into the sand before running pipe to test.

R. H. Dearing & Sons, Dallas, have staked Gibson 1, NE NE NE 15-4n-2w, about a mile northeast of the Maysville townsite. It is to be a Wilcox sand test, and location is on a 60-acre farmout from Mid-Continent Petroleum Corporation to Harry Hollenback on a short-term lease. This is the second deal completed by Hollenback in the area with Dearing taking the operation. First was the McBride 1, 30-4n-2w, which opened the Maysville field.

Cleveland County: The West Moore sector is yielding from 3 different pay zones, the Wilcox sand, Bartlesville-Burgess sands, and the Hunton lime, thus enlarging the potential scope of the area. Three wells, all in 30-10n-3w, and in the most westerly producing part of the field, have made good showings recently. Wood Oil Company's Siler 2, SW SW NE, flowed 440 barrels of oil in 9 hours through a ½-inch choke in the Bartlesville-Burgess sand zone between 7831-88 feet, the flow coming after hole was cleaned out and acidized. Total depth is 8800 feet in the Wilcox sand, this formation being dry. Wood's Stotts 2, NE SE SW, a diagonal offset to the Siler 1, flowed 441 barrels of oil in 16 hours through an open tubing choke, through perforations opposite the Hunton lime, 7940-820 feet. J. E. Crosbie, Inc., et al's Stotts 3-A, SW NW SE, flowed oil and showed gas during a 15-minute period on a drill-stem test in the Wilcox sand between 8735-71 feet, but no gauge was made. Seven-inch pipe was set at 8733 feet, top of the Wilcox. Crew is washing in.

Okfuskee County: George C. Vincent and Wade Allen have opened what appears to be a promising shallow gas field in the northern part of Lovelady Store area. Vincent has revealed that 2 wells in the Calvin sand have made showings totaling 10 million cubic feet of gas. The Vincent-Allen 1, CNE SE 17-12n-11e, showed for 3½ million cubic feet, and the Vincent-Allen 2, CSE SE, showed for 6½ million cubic feet. Drilling on the second well will continue to the Sonora sand.

☆ Kansas

Ellis County Pool Is Opened; Strike Made in Trego County

New oil pool opened in Ellis region; Republic Natural Gas opens pool in Trego County; Rush County may get another pool; Stanolind and Skelly taking potential on Benson pool well; Sun City pool gets another good well.

Ellis County: Mazda Oil Company, Tulsa, apparently has opened a new Arbuckle lime pool with Henderson 1, CE½ SE NE 22-11s-18w, 2 miles west of the Barnett pool, 2 miles from the Richards pool, and 8 miles north of Hays. Arbuckle was topped at 3633 feet, and at 3634 feet there was a good show of oil and cuttings, indicating good porosity. Plug was drilled out at 3633 feet, and the crew drilled from 3634 to 3637 feet, when the hole began to fill with oil. A 1600-foot fillup occurred in 3 hours, and preliminary estimates indicate a well from 500 to 1500 barrels may result from acidizing.

Trego County: A new pool has been opened by Republic Natural Gas Company with Hille 1, SE SE SW 23-15s-24w. Situated 9 miles northeast of the Arnold oil pool of Ness County, the well in a 6-hour period produced 39 barrels of oil from the Mississippi at 4293 feet.

Rush County: Possibility that a new oil pool will be opened is apparent with Keys Drilling Company's Dwyer 1, SW SW 1-19s-18w. Situated nearly 2 miles south of the Albert pool, the well showed good saturation, and porosity was logged in the Arbuckle, from 3625-32 feet. Preparations are being made to continue testing.

Pawnee County: Stanolind Oil & Gas Company and Skelly Oil Company are taking a potential at Riley 1, a Benson pool well in NW NW NE 30-23s-15w. After taking tools to 4101 feet, operators plugged back to the Lansing lime, and perforated casing. At 3720-30 feet, following acid treatment, the well swabbed 19 barrels of oil and no water in an hour. Lansing was topped at 3627 feet and the Simpson at 4047 feet.

Barber County: The Sun City pool has another oil well in Great Lakes Carbon Company's Massey 1 "C," NE NE NE 34-30s-15w. At 4305 feet in the Massey zone, topped at 4292 feet, 3500 feet of oil rose in the hole in 5½ hours. Following treatment with acid the well swabbed 16 barrels of oil an hour, and testing continues.

☆ New Mexico

Penrose-Skelly Field Assured Of Glorietta Pay Extension

North extension of Glorietta oil pay assured for Penrose-Skelly field; deep project in Drinkard field has thick section of granite wash; first Lower Permian test slated for Hobbs field.

Lea County: Amerada Petroleum Corporation's Hare 2, C NW SW 33-21s-37e, deepened regular Permian producer in the Penrose-Skelly field, indicated oil production from the Glorietta with water in sands above and below. A drill-stem test at 5205-36 feet yielded gas to the surface and recovered 100 feet of oil and gas-cut mud. Test at 5228-82 feet returned 255 feet of oil and gas-cut mud. It is 1¾ miles north of nearest production in the Glorietta, and was drilling at 5620 feet to explore the 6400-foot Yeso before running pipe.

The Texas Company's Blinebry 4, ½ mile north of the Drinkard field and a failure in the Permian zones, was drilling at 8315 feet in granite wash, topped at 7620 feet. Base of Permian was tentatively called at 7590 feet.

The Ohio Oil Company's Wortham 4, southwest edge of the Paddock field, which has been the most consistent of the deeper areas, flowed 876 barrels of 38.8-gravity oil initial through ⅝-inch choke after acidizing Glorietta open hole at 5080-5146 feet. Repollo Oil Company's State 1-367, offsetting the most northerly producer, was drilling lime at 4280 feet, and its Simmons 1 was drilling at 4530 feet.

Hobbs Field: Sun Oil Company's McKinley 1-B, SW SW NE 20-18s-38e, completed as a stripper pumper in March, 1936, in the San Andres at 4242 feet, is to be deepened to the Basal Permian to try to forestall loss of lease. This northeast edge well is pumping about 4 barrels of net oil daily, and is holding a 160-acre lease. The Hobbs structure has produced about 151 million barrels, and has a substantial reserve of high-gravity crude in the upper sand (Bowers) in the high part of the field that has not been disturbed. It is considered an outstanding prospect for Lower Permian and deeper zones, but has not been explored below 4720 feet, involving a failure that offsets the most northerly producer.

☆ West Texas

Strike Made in Midst of Leases Needing November Production

Andrews County has Clear Fork oil discovery in midst of University leases requiring production by mid-November; 6 or more immediate tests probable; Schleicher County's second oil well makes large flow from 2 zones; two-mile north extension given TXL field, possibly proving 30 Ellenburger locations.

Andrews County: The Texas Company (was The Atlantic Refining Company's) University 1-P, C SW NW Sect. 15, Block 12, 7⅓ miles northwest of the Martin 3-pay field, opened a new Clear Fork (Fullerton) pay area when a drill-stem test at 7127-7269 feet yielded sweet gas to the surface in 13 minutes and headed oil. The drill pipe contained 5110

A pipe with a heart of iron

Submarine bait, that's what they were—until "Old Ironsides" did her stuff.

When Japan struck, tankers were bringing in most of the California "crude" refined on San Francisco Bay. On that "milk run," they were juicy targets for a wandering Nip sub. Besides, Uncle Sam needed tankers elsewhere.

The question thus propounded was a toughie. What to do! You can't build a pipe line by waving a wand. So "Old Ironsides" came to the rescue. And why not? Back in 1812, the frigate "Constitution" set a precedent for an "Old Ironsides" coming to the aid of the nation in time of conflict.

This time "Old Ironsides" was a natural gas pipe line owned jointly with two other companies. Converted quickly to oil, it relieved those tankers by carrying vast quantities of oil to San Francisco — funnel's mouth of the Pacific war.

It not only helped keep our own vital bay refinery at capacity but did as much *also* for the San Francisco Bay refineries of practically *the entire industry.*

Completion of our new four million dollar San Joaquin pipe line—which will connect our refinery at Richmond with oilfields 176 miles away—soon will allow "Old Ironsides" to resume civilian duty as a natural gas line.

So the time seems appropriate to give "Old Ironsides" (1941-5 model) a cheer—just as if that pipe line were a fort or fighting ship. To an iron pipe with an iron heart: Well Done!

STANDARD OF CALIFORNIA

feet of 38-40-gravity oil and 120 feet of muddy drilling water, while the shut-in bottom hole pressure built up to 2500 pounds. This wildcat was deepened to 7320 feet, where a drill-stem test was pending. University 1-P was taken over by Texas at 4965 feet after Atlantic had filed plugging orders. The Glorietta was entered at 5310 feet, with elevation of 3294 feet, or 40 feet high to 10,760-foot Ellenburger failure 1-1/16 miles northwest. All nearby leases, except 2 held by Texas, require production by November 14, and owners are preparing to drill and perpetuate same.

Shell Oil Company's Nelson-Humble 1, near west side of Andrews County and 4 miles east of Basal Permian production in New Mexico, established the sixth Ellenburger producing area for the county in flowing 479 barrels of 43-gravity oil and 36 barrels of acid residue and rotary mud, with gas-oil ratio of 373/1, for completion through 20/64-inch choke. This production is from Ellenburger open hole at 10,384-585 feet followed by granite wash to 10,606 feet. The pay is subnormal in porosity, and does not respond readily to acid treatment. Flowing pressure is negligible. Shell's Pinson-Humble 1, ¾ mile southwest, entered the San Angelo (Glorietta) at 5490 feet, or 59 feet low, but correlates 29 feet high to the 10,929-foot granite failure ¾ mile west by north.

Dollar Hide Field: Magnolia Petroleum Company's Cowden 1-B, ¾ mile northeast outpost and a failure in the Devonian, tested salty-sulphur water in the Silurian at 8675-8723 feet, and was deepening to the Ellenburger.

Martin Field: Humble Oil & Refining Company's Parker 2, highest structurally, entered the Ellenburger at 8680 feet, and has cemented pipe on bottom at 8945 feet. A drill-stem test of the section showed rated production of 254 barrels hourly, based upon flow through drill stem and the oil recovery. Phillips Petroleum Company paid cash bonus of $280,000 for University lease on NE¼ Sect. 2, Block 11, and less than a mile to the south. However, the latter may have only 1 location capable of Ellenburger production due to the sharp southwest dip of formation below the Permian.

Schleicher County: Cardinal Oil Company's Koy 1-A, C NW SE GH&SA 38, Block L, north edge of the Page field gas area and 2¾ miles north by west of a single 25-barrel oil well, uncovered flush production from 2 Strawn zones. This outpost flowed 91 barrels of oil including 4 to 7 percent bottom sediment and water, on 2-hour test through open tubing after using 3000 gallons of acid through perforations at 5605-45 feet, with pipe on bottom at 5700 feet. Separate test of perforations at 5520-70 feet netted a flow of 110 barrels of 40-gravity sweet crude, with gas-oil ratio of 1340/1, on 2-hour gauge through tubing after using 3000 gallons of acid. Perforations are to be made opposite gas pay at 5340-5410 feet to try for dual completion. Koy 1-A is on a Shell farmout, and occupies the high point of the structure, having entered the Strawn at 5200 feet, with elevation of 2317 feet.

Gaines County: Argo Oil Corporation's Jones 1-E, a mile east of the Jones Ranch field discovery and more than 300 feet low, was abandoned at 11,560 feet after testing water in the Devonian. B. H. Nolen et al's Jones-Stanolind 1, 2 miles north of the Cedar Lake field and ½ mile east of a depleted oil producer, is completing as a gasser in the Yates at 2926 feet with estimated flow of 8 million cubic feet of sweet gas daily. A gas line was built into the field to repressure the oil area earlier this year, but the new supply can be absorbed.

Ector County: Texas' T. P. Land Trust 1-F, C NW SW T&P Ry. 39, Block 45, T-1-N, 2 miles north of the TXL field and ¾ mile northeast of a failure, proved about 30 additional Ellenburger locations in making a prolific flow of oil and gas from 35-foot penetration of the Ellenburger. This zone was entered at 9765 feet, with elevation of 3334 feet, or 104 feet high to the failure. A drill-stem test at 9800 feet yielded gas to the surface within 5 minutes, attaining maximum daily rate of 1,830,000 feet, and the well flowed 66 barrels of 40.8-gravity oil the last hour. Plugs have been drilled from 5½-inch casing at 9786 feet to deepen. Offsets will be drilled by Atlantic and Shell.

John W. Murchison et al's T. P. Land Trust-Texaco 1, Devonian discovery 3½ miles south by west of the TXL field, was repairing pumping unit after testing 23 barrels of oil and 34 barrels of salt water on 20-hour gauge. Production is from open hole at 8510-66 feet. This lease requires production by October 11.

Phillips et al's Eidson-Scharbauer Unit 1, reworked Ellenburger discovery for the Penwell field, flowed 10 barrels of oil hourly, with gas-oil ratio 409/1, on 17-hour test after using 250 gallons of acid in new perforations at 8895-8910 feet, having plugged back to 8915 feet. It was originally completed from perforations at 8920-50 feet, and water broke through from below. E. E. Fogelson and Cosden Petroleum Corporation's University 1-C-D, offsetting regular Permian wells and 1⅞ miles southeast of the Ellenburger strike, entered the Glorietta (Holt) at 4415 feet, or 10 feet low, and recovered 10 feet of oil and 10 feet of oil-cut mud when tester was used at 4446-4530 feet. It was drilling at 4760 feet. The latter will require 3 direct and a diagonal offset if productive in deeper zone.

Cities Service Oil Company's Parker-Wentz 1, Harper area, was drilling Upper Ordovician at 11,795 feet. Stanolind Oil & Gas Company et al's Kayser Unit 1, Foster area, resumed coring after recovering 455 feet of gas-cut mud when tester was used at 11,885-12,060 feet in the Silurian. Both have logged sufficient shows to warrant setting pipe.

Crockett County: Francis A. Callery et al's Todd 1, C NW NW GC&SF Ry. 66, assured the expansion of the highly productive Ellenburger sweet-crude horizon in the Todd field 4100 feet southeast in entering the dolomite at 5790 feet, with elevation of 2691 feet. It correlates high to nearest wells. Pay was drilled to 6092 feet, and the well is being completed from open hole below 5900 feet. A minimum of 6 wells will be drilled promptly. Humble's Fee 2-C, north offset to the most easterly producer, flowed 121 barrels the first and 122 barrels the second hour on preliminary test of perforations between 6124-6284 feet.

Stanolind's University 1-GG, C SW SW Sect. 12, Block 39, contracted deep test for the northeast sector of the county, was drilling at 4410 feet. The company, buying through brokers, paid an average of $1000 per acre cash bonus for lease on a checkerboard of quarter sections within its 2507-acre block at the June 7 University sale. In view of these prices it is assumed that the well log is confirming the favorable geophysical picture.

Crane County: Gulf Oil Corporation paid a cash bonus of $422,000 and contracted to start a 10,000-foot Ellenburger test within 6 months for University lease on 1600 acres in Sects. 2, 3, 10 and 11, Block 31, centering 4 miles north of the Block 31 two-pay field.

Snowden Buys Kerlyn, Phillips Properties in North Texas

Homer W. Snowden Oil and Gas Company, Ltd., Dallas, has acquired Kerlyn Oil Company and Phillips Petroleum Company's properties in the Garvey and nearby fields in the Young County sector of North Texas for $300,000 cash with an obligation to drill 20 wells within 1½ years.

This deal involves 18 oil wells in the Bend and Mississippi averaging 1060 barrels daily and about 5400 acres of developed and wildcat acreage. Phillips is reported to have reserved 1/16 overriding royalty for its share of the joint ownership. Kerlyn was recently succeeded by the Kerr-McGee Industries, Inc.

Pan American Production Buys Producing East Texas Leases

Pan American Production Company, largest purchaser of crude in the East Texas field without lease representation, has entered the producing column through the purchase of two properties for an estimated consideration of $3,400,000.

The company has canvassed the field for months seeking desirable leases, and has offered prospects up to 25 percent over-riding royalty interest as an added inducement. The initial purchases involve H. R. Smith et al's eight leases, consisting of 44 wells on 149¼ acres, with an allowable of 886 barrels daily, and the Henry Oil Company's S. S. Laird 7.97-acre lease, with 13 wells prorated to 260 barrels daily.

Repressuring, Unit Operation Sought for Oklahoma Fields

Applications for unit operation and gas repressuring in three of Oklahoma's productive oil fields will be filed with the Oklahoma Corporation Commission within a month. It also has been revealed that operators are considering repressuring in five other large-producing fields.

Major area under consideration is the Hunton lime zone of the four-county West Edmond field. Engineers have completed preliminary work, a number of the major operators have approved the plan, and it is expected that by the end of June the project will be carried to the Commission for approval.

Operators of the Medrano sand sector, West Cement field of Caddo County, are studying engineers' reports and drafting agreements with the possibility that actual work will be started before the end of the year. Engineers have estimated an additional recovery of 20 million barrels of oil through unit operation.

Third project, which possibly will be the first to get started, is the Northeast Edmond field of north-central Oklahoma County. Delivery of equipment is the only obstacle.

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Do you have control during the assembling and disassembling of equipment?

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2. The period between sealing the final string of casing and providing equipment for running the tubing.
3. The period between the running, hanging and sealing of the tubing and assembling of the flowing manifold.
4. The period between outside washing and elevating of tubing to hanging position.
5. The period between the removal of flowing manifold and assembling of control equipment for unseating of packers and killing of the well when reworking becomes necessary.

There are many other periods where the changing of equipment becomes necessary in meeting usual and unusual problems which arise during the drilling of an individual well, but these illustrations serve to remind one of the necessity for control during and between all operations. Gray Systems of Well Control provide the degree of complete control referred to above, plus the ability to use master valves, blowout preventers, strippers and other available control equipment throughout their entire period of usefulness, after which provision is made for the disassembling and removal of these expensive parts, with control, to the position of accessories for use on other wells.

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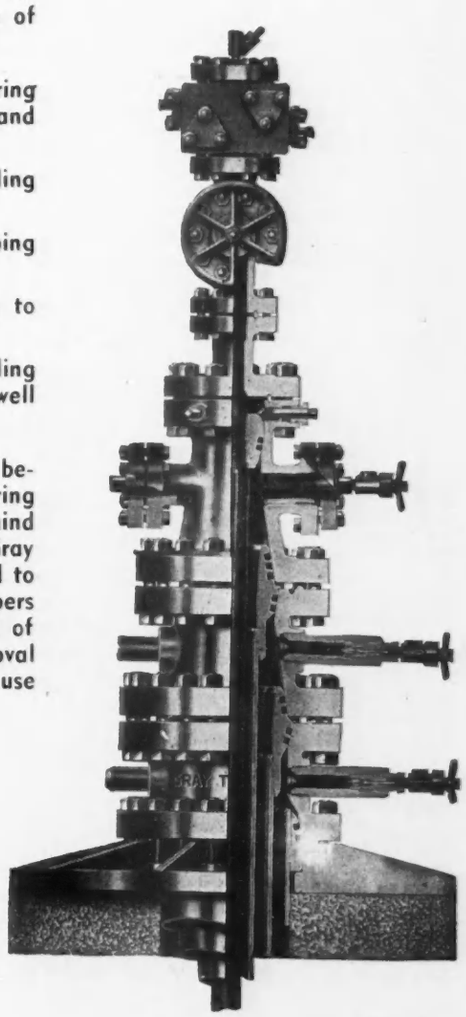

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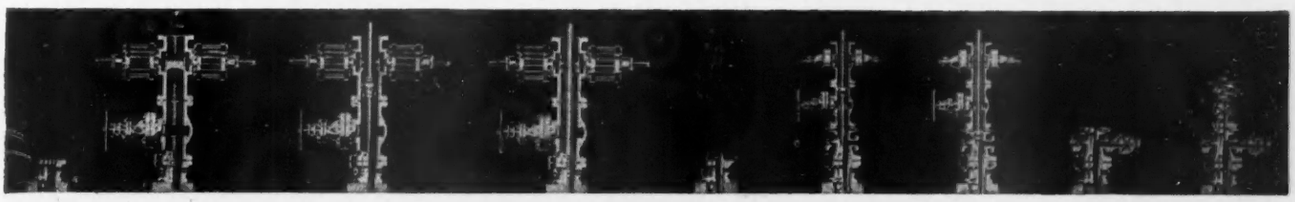

Casing Head Attached | Drilling | Running Casing | Casing Landed | Drilling Control Equipment Removed | Drilling-in and Running Tubing | Tubing Landed | Control Equipment Removed | Manifold Attached

☆ North Texas

Wilbarger County Gets Canyon Strike Near South Vernon Field

Wilbarger County has Canyon lime discovery; Jack County wildcat showing for gasser in Ellenburger; Sivels Bend field has second producer in Basal Strawn.

Wilbarger County: National Associated Petroleum Company's Schmoker 1, C N½ NW NE H&TC Ry. 111, Block 14, 2½ miles north of the South Vernon multi-pay shallow field, flowed 170 barrels of oil with a negligible volume of water in 8 hours while running tubing from open hole at 3502-27 feet. This discovery entered the Canyon at 3500 feet, with elevation of 1273 feet, and was plugged back after testing water in Ellenburger at 5693-5718 feet. Close-in acreage is held by Cities Service Oil Company, Humble Oil & Refining Company and The Texas Company.

Humble's King 1, SW SE NW H&TC 36, Block 13, expanded the National multi-pay field a short distance northwest in flowing 232 barrels of 38.4-gravity oil, with gas-oil ratio of 250/1, on 3-hour gauge through ¾-inch choke from open hole at 4899-4920 feet in Ellenburger, topped at 4898 feet. This is the first production off the discovery block held by National Associated Petroleum Company, which has 14 producers that are prorated to 1060 barrels daily.

Jack County: Continental Oil Company's Heath 1, C. A. Beatty Survey A-1358 and 7/16 mile southwest of the Webb pool's 2900-foot pumper, was having difficulty in mudding off high pressure dry gas encountered while drilling at 6414 feet in Ellenburger, topped at 6050 feet. It is carrying open hole below surface pipe.

Cooke County: Sun Oil Company and The Texas Company's Gibson Unit 1, John Massingill Survey and near the north edge of Sivels Bend field, filled with oil and was swabbing to unload after drilling plugs from pipe at 7368 feet while bottomed in Dillard (Strawn) sand at 7378 feet. This is the second producer for the deep zone. The upper pays were absent, Standard Oil Company of Texas' Waj 2, south edge of the field, flowed 1142 barrels of 41.6-gravity oil natural through ¼-inch choke. It is the second largest, and is producing from perforations opposite 4 sands between 6610-6877 feet.

☆ East Texas

Trinity Failure in Fairfield Area Heads For Smackover Lime

Trinity failure in Fairfield area to continue to the Smackover; northeast outpost assigned Mount Sylvan field; Henderson field due extension to southwest; Opelika field has second oil producer.

Freestone County: The Texas Company's White 1, Wm. King Survey and 5500 feet west of its Travis Peak gas discovery for the Fairfield area, failed to make a producer in drilling to 8334 feet, where a fishing job was encountered. It will be deepened to 12,000 feet to explore Smackover lime.

Cherokee County: Hunt Oil Company's Andrews-Pure 1, Travis Peak wildcat in the Jacksonville area, was nearing the Massive anhydrite beds in drilling at 8325 feet.

Hunt County: K. L. McHenry et al's Neely-Magnolia 1, J. E. Clark Survey and 3 miles southeast of Caddo Mills, was drilling at 3750 feet in Barren Paluxy, topped at 3705 feet with elevation of 536 feet. It is contracted to explore the Travis Peak.

Rusk County: Mid-Continent Petroleum Corporation's Alford 1, John Sory Survey and 2080 feet southwest of the Henderson field's Pettit oil area, was perforating to test porosity in the Gloyd at 6640-66 feet, with pipe set at 7600 feet, or 10 feet off bottom. The Gloyd was entered at 6646 feet, or about 7 feet low.

Henderson County: Lone Star Producing Company's Hearne-Magnolia 1, J. E. Clancey Survey, provided the second oil producer for the north flank of the Opelika gas-distillate field in flowing 221 barrels oil natural through ¼-inch choke from Rodessa perforations at 8825-58 feet. Gas-oil ratio is 4066/1. An unsuccessful attempt was made to dual complete in the 9400-foot Pettit gas zone. This producer is 2⅔ miles northeast of the oil discovery, indicating the possibility of a long belt of oil area. The width of this oil area is speculative. The company's Dyer 1, Adrian Angline Survey and an oil project, was drilling at 8740 feet.

☆ East Texas Border

Carthage Field Gasser Dually Completed from Hill, Pettit

Large gasser dually completed in Carthage field; Marion County discovery officially completed on pump

Panola County: Delta Drilling Company dually completed a large gas producer in the Carthage field, Floyd Ragler and John Lewis 1, A. B. Davis Survey, 9 miles east and slightly north of Carthage. Hole was perforated at 5052-74 and 5074-5152 feet in the Hill zone. Hill porosity was logged from 5063-73 feet, Gloyd porosity at 5105-5237. Another set of perforations was made in the upper Pettit from 5838-58 and 5865-78 feet. Pettit porosity was logged from 5839-5858 and 5865-77 feet. Perforations were acidized with 8000 gallonsof acid. An estimated open flow of 480 million cubic feet of gas daily was coming from the Hill zone, and an open flow of 15,500,000 cubic feet estimated from the upper Pettit. Total depth is 6504 feet.

Marion County: Magnolia Petroleum Company et al's Orr 1, Fowler Survey, discovery 3 miles southwest of Avinger, was officially completed on pump for 97 barrels of 40.9-gravity oil and 41 barrels of salt water daily. Production is from the Travis Peak at 7568-77 feet through 69 perforations. The well was drilled to 10,513 feet in the Cotton Valley, topped at 9265 feet. Magnolia is reported planning an east offset.

Cass County: W. B. Hinton's J. O. Betts 1, wildcat in the Beard Survey, was reported drilling in the Hill zone at 7639 feet. Anhydrite was logged at 6705-6910 feet. So far the well has reported no shows.

Harrison County: The Texas Company's White 1, King Survey, 4 miles west of Fairfield, is scheduled to test the Smackover lime zone, and is down to 8365 feet. An expected deep gas pay was not found at the 8200-foot level.

☆ South Central Texas

First Oiler Being Completed in Muil Field, Atascosa County

First oil well in new Muil field being completed; wildcat southwest of Bastrop dry on first test; Frio County wildcat running low.

Atascosa County: Quintana Petroleum Company's C. Muil 2, 1320 feet southwest of the No. 1 discovery in the Muil field, is being completed as the first oil well in the field. Production is from the Edwards lime, topped at 8970 feet, and 5½-inch casing was set to 9010 feet with total depth 9060 feet. The well flowed 34 barrels of 43-gravity oil per day with gas-oil ratio estimated at 30,000/1. Flow was through ¼-inch choke with tubing pressure 1000 pounds. The discovery well for the field flowed 3 million cubic feet of gas per day and 50 barrels of condensate through ¼-inch choke and topped the Edwards lime at 9000 feet.

Bastrop County: C. W. Voyles' Moncure Estate 1, wildcat, 4 miles southwest of Bastrop townsite, tested dry after drilling plug at 3479-83 feet in the top of the Edwards lime. The hole was then deepened to 3486 feet and made a drill-stem test for 40 minutes, recovering 160 feet of slightly gas-cut mud. The operator was then to make further tests.

Frio County: G. W. Strake & Warren Petroleum Corporation's Henry 1, wildcat 3 miles northeast of Friotown, was reported running very low. Top of the Edwards lime was logged at 3575 feet and stains were found in the lime when the tools were brought out of the hole at 3617 feet to put on a new bit. This wildcat topped the Hard Taylor at 2540 feet and the Austin chalk at 2902 feet.

Secretary Krug to Speak Before Interstate Compact

Julius A. Krug, Secretary of the Interior, will be the principal speaker on the program of the Interstate Oil Compact Commission's summer quarterly meeting at Grand Rapids, Mich., August 8-10. Governor Robert S. Kerr, of Oklahoma, chairman of the Compact Commission, said Krug may discuss the relationship between federal and state government in oil and gas conservation.

The Grand Rapids meeting is the first quarterly meeting to be held in Michigan. Committee meetings will be held on the first day, and general sessions on August 9-10, with Krug's appearance on the 10th.

Gasoline Plant in Operation

C. V. Lyman, Midland, Texas, producer, has placed in operation a 15 million cubic foot capacity absorption type natural gasoline plant in the Emperor Deep field, Winkler County sector of West Texas. A portion of the residue gas will be utilized for repressuring nearby leases, while the remainder will be purchased on contract by El Paso Natural Gas Company. The products output of the plant has been contracted by Standard Oil Company of Texas for delivery to its El Paso plant through the Pasotex Pipe Line Company's carrier.

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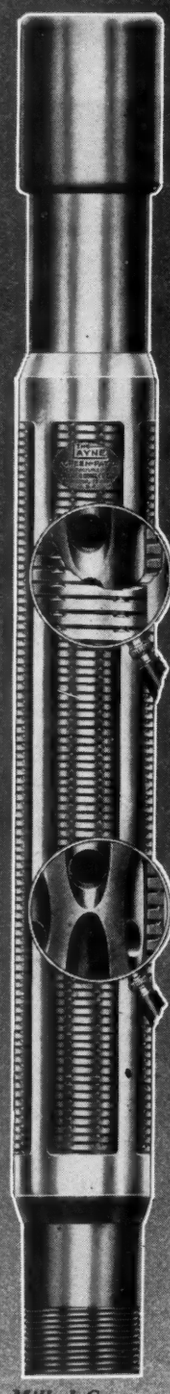
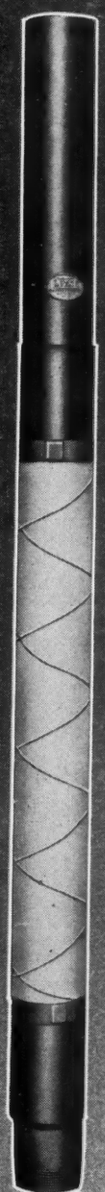


Milled Groove



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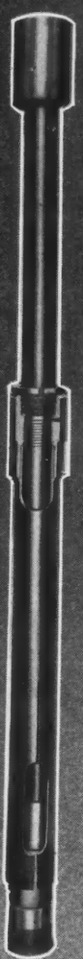

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☆ West Texas

Discovery Allowable Is Asked; Peters Field Well Completing

Discovery allowable asked for Starr County well; old Peters field well completing; dual-completion permit asked for Piedras Pintas well.

Starr County: W. H. Holland has asked the Texas Railroad Commission for discovery allowable at Roos-Bennett 1, between the Boyle and Garcia fields, and has also requested that the area surrounding the well be given a new-field name. The Roos-Bennett 1 gauged 147.37 barrels of 26-gravity oil per day on ¼-inch choke while testing with production from perforations at 2961-67 feet. The commission set July 3 as the hearing date.

W. L. Goldston's Roos-Bennett 3, north offset to the number 1 well, has been abandoned at total depth of 3113 feet after finding the pay sand thinned out and tight.

Duval County: Reed & Morgan's First National Bank of Bay City 1, NW¼ SE¼ NW¼, J. B. Duncan Survey 188, old Peters field, is being tested for completion after squeezing off bottom hole water from 2457-61 feet. Drilled to total depth of 2688 feet, 5½-inch casing was set to 2509 feet and the tests for completion are at the 2455-foot level. A drill-stem test at 2451-56 feet before the pipe was set recovered 30 feet of oil-cut mud with 400 pounds working pressure and all tests below this depth showed salt water.

H. H. Howell is waiting on dual-completion permit at Gulf Oil 2, Piedras Pintas field. The well already has been completed for 292 barrels of 49-gravity oil from perforations at 3392-3427 feet. The operator now seeks permission to dually complete from perforations at 3198-3210 feet, where on test a flow of 244 barrels of 47-gravity oil per day was gauged with gas-oil ratio 400/1. This is a new pay zone for the field.

Houston Geologists Elect

Shapleigh G. Gray, consulting geologist, has been elected president of the Houston Geological Society for 1946-47. Other officers elected are vice president, Charles H. Sample, J. M. Huber Corporation; secretary, A. F. Childers, Gulf Oil Corporation; and treasurer, Wayne Z. Burkhead, Union Oil of California; advisory committeemen, R. L. Beckelhymer, consulting geologist; J. A. Culberson, Continental Oil Company; and E. L. Earle, Crown Central Petroleum Corporation.

☆ Lower Texas Coast

Brooks Wildcat Is Abandoned; Another May Be Pool Opener

Brooks County wildcat plugged while another in the same vicinity shows as possible gas-condensate pool opener; new gas field opener in Jackson County gets potential test; production in East Mauritz field extended northwest.

Brooks County: Tom Graham's Prospero Mangell 1, wildcat 4 miles southeast of the old shallow Alta Mesa field, has been abandoned after testing on pump in an effort to make a commercial oil well. Drilled to 7310 feet with 5½-inch casing set to 6625 feet, perforations for completion were 6558-63 feet. The well showed satisfactorily on drill-stem test but the flow died and after acidizing it pumped small amounts of oil and acid water. Last gauge on pump was for 11 barrels in 8 hours, 20 percent being oil and 80 percent mud and acid water.

Tom Graham's Maura Chavana et al 1, wildcat 3½ miles southeast of the old Alta Mesa field, perforated at 7303-09 feet and drill-stem test for 30 minutes developed 1650 pounds working pressure with ¼-inch top choke and ⅜-inch bottom. Nine stands of gas-condensate cut mud were recovered and the well developed 2750 pounds bottom hole pressure flowing and 5400 pounds shut in. This well was abandoned by Standard Oil Company of Texas at 7361 feet after mechanical trouble in testing gas-condensate sands below 7000 feet, and Tom Graham took it over in March to rework and test.

Jackson County: Hewitt & Dougherty's A. A. Johnson 1, wildcat 3½ miles northwest of the Cordele field, has been given production gauge, flow being from perforations at 4150-60 feet. On open flow test the well yielded an estimated 20 million cubic feet of dry gas per day and on ¼-inch choke gauged 2¼ million cubic feet per day with 1650 pounds tubing pressure and 1750 pounds casing pressure. On 3/16-inch choke it made 1,400,000 cubic feet of gas with 1375 feet tubing pressure. The discovery was drilled to 6800 feet with 5½-inch casing set to 4215 feet.

East Mauritz field production has been extended ½ mile northwest by Sterling Oil & Refining Corporation's Kountze & Stewart 1-B. On potential gauge the well flowed 94.5 barrels of 27.8-gravity oil per day through ⅛-inch choke with 700 pounds tubing and 1000 pounds casing pressure and gas-oil ratio 475/1. Total depth is 7920 feet with 5½-inch casing set to 6827 feet and perforated for completion at 5624-46 feet.

Urge Senators to Lift Oil Price Control, Porter Asks Nation

Frank M. Porter, Oklahoma City, president of the Mid-Continent Oil & Gas Association, called on the nation to urge senators to remove price controls from crude oil and petroleum products.

He said that unless the price control extension bill is amended in the Senate to assure decontrol of petroleum, the industry will suffer inadequate prices and the economy of the oil states will be seriously impaired.

"The oil industry presented to the Senate Banking and Currency Committee an unanswerable argument as to why price controls should be lifted from crude oil and petroleum products. The statistical position of the industry," he said, "has indicated no shortage of crude or products since V-J day. All demands for crude oil have been met and are being met. Stocks of refined products continue at unusually high levels. Excess refinery capacity exists.

"Proponents of the OPA extension bill could not then and cannot now successfully attack these facts. OPA officials speak vacillatingly of the necessity of holding controls until late summer or perhaps fall, without advancing any good reason therefor."

☆ Upper Texas Coast

Matagorda County Sugar Valley Field Given North Extension

Limits of Sugar Valley field extended; Wilcox topped in Conroe area wildcat; production in Sublime field extended southeast; salt reached in Pierce Junction dome deep west flank test.

Matagorda County: In the Sugar Valley field Stanolind Oil & Gas Company's Helen Hurlock 1, Freeman Pettus Survey, has extended production 3000 feet north on the east side of production and has been completed as the best oil well in the field. On potential test the well flowed 172.24 barrels of 30-gravity oil daily through ⅛-inch choke with 1700 pounds pressure on casing and 1100 pounds flowing pressure on tubing and gas-oil ratio 530/1. The well was drilled to 9598 feet with 7-inch pipe set to 9064 feet and perforated for completion at 8980-95 feet.

Extending production to the east in the Sugar Valley field is Skelly Oil Company's C. C. Talcott 1, 2000 feet north of Cocke 1 and 3650 feet east-southeast of Thomasson 1. On initial test the well flowed five barrels of clean oil hourly through 5/32-inch choke from perforations at 8855-63 feet. Total depth is 9508 feet with 5½-inch pipe set to 9168 feet.

Montgomery County: McKay Donkin & Lloyd Smith's C. L. Rawson 1, wildcat 4½ miles northeast of Conroe, topped the Wilcox at 7876 feet and is drilling to scheduled depth of 10,000 feet. Operators cored solidly between 7850-8027 feet with no shows encountered. Only show to date is in the Cockfield, where a drill-stem test at 4646-56 feet recovered 90 feet of oil-cut mud with a like amount of salt water and 300 pounds gas pressure.

Colorado County: Tide Water Associated Oil Company's D. L. Underwood 2 has extended production 2675 feet southeast in the Sublime field. With pipe perforated from 9507-14 feet, the well flowed on potential 270.23 barrels of 32-gravity oil daily through 3/16-inch choke, showing 12 percent water. Flowing pressure on the tubing was 1200 pounds with 800 pounds on the casing.

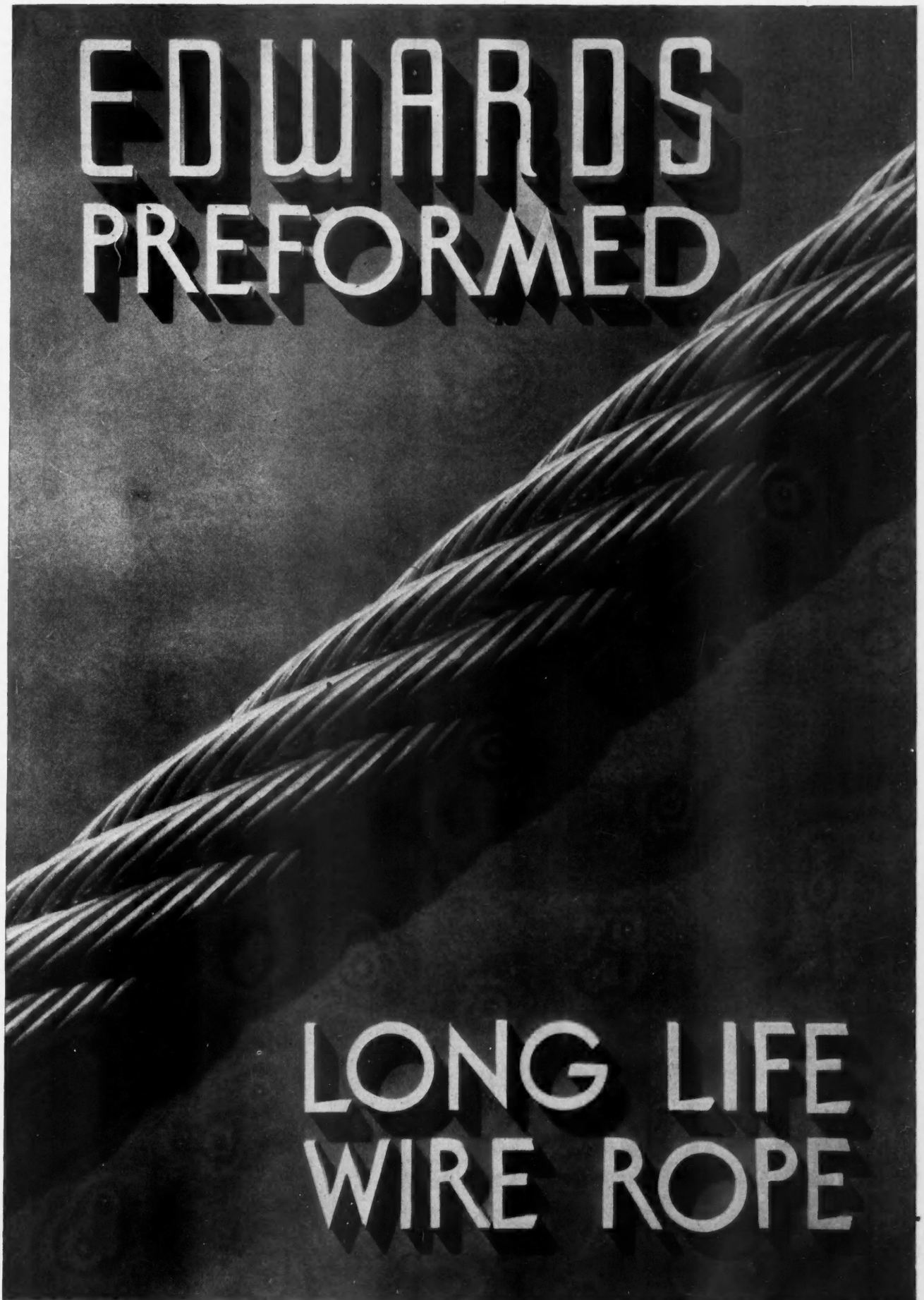
Harris County: Salt has been reached in Gulf Oil Corporation's C. S. Settegast et al 2, deep test on the west flank of the Piece Junction dome. While taking side wall cores at 10,249 feet the core barrel was lost and after recovery had been accomplished operators drilled to 10,408 feet in salt.

☆ South Louisiana

Magnolia Increases Activity in Mamou Field, Evangeline Parish

Magnolia drilling activity in Mamou field increasing; Cameron Meadows area wildcat plugged with no shows; Shell completes new well for Black Bayou field; salt reached in Humble's Napoleonville dome north flank test; Potash field given additional oiler.

Evangeline Parish: Magnolia Petroleum Company's development of the Mamou field is well under way with 2 wells completed, 9 rigs working on additional wells, and 2 locations made. In the Wilcox-pay field, Magnolia's Brunet-Granger Unit 1, ¾ mile east-southeast of the discovery well, drilled below



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12,329 feet after setting 7-inch pipe to 11,984 feet and is scheduled for a total depth of 13,000 feet. Southwest of the discovery well by ¾ mile, L. F. Duos 1 is drilling below 12,589 feet after setting 7-inch pipe to 12,115 feet. Morein-Landreneau Unit 1, west offset to the discovery, is drilling below 9490 feet; Walter Reed 1, north offset to the discovery, is drilling below 9385 feet; and Levy Smith 1, south offset to the discovery, is near the 10,000 foot level. Deshotels 1, ½ mile northwest of the discovery in 7-5s-1e, is below 9490 feet.

Cameron Parish: Magnolia has plugged Cameron Meadows 44, wildcat in 27-14s-13w and southeast of production in the Cameron Meadows field, with no shows encountered. The wildcat was drilled to 8675 feet and is east of the company's No. 43 well, which was a mile south of production and completed in a new deep sand.

In the Black Bayou field of Western Cameron Parish, Shell Oil Company's Watkins 62, 8-12s-12w, tested 260 barrels of 40.4-gravity oil per day. Drilled to 7200 feet, pipe was cemented to 6880 feet and perforated for completion from 6795-6815 feet. Flow was through 9/64-inch choke with gas-oil ratio 612/1 and tubing and casing pressures equalized at 700 pounds.

Assumption Parish: Salt has been topped at 8942 feet in Humble Oil & Refining Company's Kessler-Sternfels 1, deep exploration test on the north flank of the Napoleonville dome. This well, in 33-12s-13e, is the offset to Shell Oil Company's Triche well. Drilled to 8961 feet in salt, Kessler-Sternfels 1 has been plugged back to 7700 feet and was to be tested after cement had set.

Placquemines Parish: Humble's Orleans Levee Board 72, in 13-18s-15e, is being completed as another well for the Potash field. From perforations at 8356-62 feet the well gauged on initial tests 195 barrels of 29.5-gravity oil per day through 9/64-inch choke with 750 pounds flowing pressure and gas-oil ratio 653/1. A test previously made at 8310-35 feet flowed at the rate of 227 barrels per day through ⅛-inch choke and gas-oil ratio 480/1. A test at 8376-84 feet also showed for production.

☆ North Louisiana

Franklin, Red River Parish Prospects Continue to Test

Prospective discoveries in Franklin and Red River parishes continue testing; California's third test in Hico-Knowles area waiting on orders; 2 deep wildcats drilling below 10,600 feet in Bossier and Sabine parishes.

Franklin Parish: Sohio Petroleum Company has taken over operations at Leo Rogers 1, gas discovery in C SW NE 15-16n-9e, 4 miles south of Delhi production. The well flowed 800,000 cubic feet of dry gas per day through ¼-inch choke from perforations at 4199-4214 feet in the Tuscaloosa. After a squeeze job, drilling continued to test the 4300-foot level. Total depth is 4682 feet.

Lincoln Parish: The California Company's T. L. James & Company 1, 31-20n-3w, 2¾ miles north and 1 mile east of the discovery well for the Hico-Knowles area, cored 40 feet of Cotton Valley sand saturated with gas-distillate. A drill-stem test from 8420-60 feet recorded a good gas blow and recovered 60 feet of condensate. A later drill-stem yielded 3000 feet of water cushion. The well is now waiting on orders at 8521 feet, total depth. This test is 1¾ miles north and ¾ mile east of the company's W. A. Colvin 1, abandoned at 9005 feet.

Bossier Parish: Very slight shows of oil and little gas having resulted from thorough testing of the Cotton Valley sands, Barnsdall Oil Company is taking the Carter-Burton 1, wildcat in 26-23-13w, Plain Dealing area, to the Smackover lime. Plans call for 12,000 feet or deeper. The well is now drilling below 10,726 feet.

Sabine Parish: Union Producing Company's deep wildcat, Louisiana Long Leaf Lumber Company 1, 29-9-11w, Zwolle area, is coring below 10,602-21 feet.

Red River Parish: M. T. Halbouty's wildcat, Willie Savill 1, 36-11-10w, perforated open hole with 36 shots from 1214-26 feet, shot with nitro-glycerine and is now acidizing in an effort to increase the flow. Oil was tested from the Nacatoch sand.

Permit has been issued for The Carter Oil Company's Long Bell Lumber Company 1, 24-13-10w, wildcat, which will be taken to the Paluxy zone.

Pennsylvania Grade Meet

Progress made in the production research program sponsored by the Pennsylvania Grade Crude Oil Association will be reviewed at the association's 23rd annual meeting in the William Penn hotel, Pittsburgh, on June 27. Directors to be named will elect officers at a meeting June 28. W. F. Clinger of Warren, Penn., is president of the association.

The opening session will be devoted to phases of the association's production research program. Advertising and the plan of unit operation will be discussed at luncheon and the afternoon session.

The banquet speaker, a man of national prominence, is to be announced.

☆ Arkansas

Abandoned Wildcat to Get Test; Two Projects Are Failures

Abandoned wlidcat to be retested; 2 wildcat failures reported; new wildcat getting started.

Union County: H. E. Wasson's Union Sawmill A-1, C SW SW NE 8-8s-12w, was tested at 2559 feet, obtaining salt water and a show of oil, and was to plug back to the Nacatoch for retest. The well was drilled months ago and showed indicaions of producing but later yielded salt water. It is 4 miles west of the New London field.

Miller County: The Carter Oil Company's Irene Offenhauser 1, NW NE 5-17-26, was still coring after recovering 5½ feet of oil-stained sand at 3500-56 feet.

Independence County: Rosie Hill Oil Company's Wyatt 1, wildcat, was preparing to run 6⅝-inch casing at total depth of 1192 feet.

Little River County: K. E. Merren's James D. Shaver 1, E SWc 36-12-31, was abandoned at 3022 feet. The test was unexpectedly lower on structure. Robert

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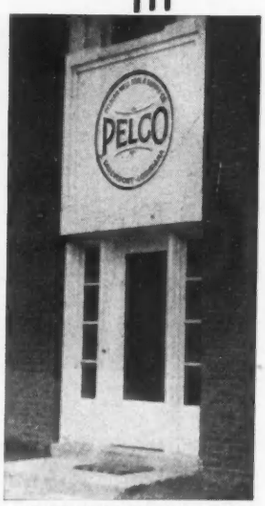

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O'Mears' Ed Wood Heirs 1, NE 7-14s-28w, is a new wildcat location.

Ouachita County: C. A. Lee's Morgan 1, wildcat in NE NE SW 2-15s-19w, was abandoned at 2330 feet. The Nacatoch, topped at 1400 feet, carried slight stains of oil. Tokio was topped at 2305 feet. The well checked high on structure but the expected pay zone, the Buckrange sand, shaled out.

Logan County: Arkansas-Oklahoma Gas Company's N. C. Biggs 1, wildcat, S NEc NE NW 7-7-27, is below 6100 feet.

Nevada County: Placid Oil Company et al's Mrs. Levi West et al 1, SE NE 19-14-21, drill-stem tested a sand between 2052-65 feet and recovered salt water. Previously, coring from that level recovered 2 feet of sand showing oil and 6 feet of shale.

☆ Mississippi

Baxterville Has New Producer; Lincoln County Activity Gains

Successful completion noted for Baxterville field; Lincoln County takes lead in prospecting.

Lamar County: Gulf Refining Company's Virgil Davis 1, NEc SE 7-1n-16w, Baxterville field, has been successfully completed with an initial production of 513 barrels of 15.4-gravity oil per day. Further up the hole good odor of gas was determined in the Wilcox horizon, at the 4800-foot level but the shows were not developed and the well was brought in from the field's regular producing zone at approximately 8700 feet in the Massive sand. Gulf has rigging up for 2 other development wells in the field—I. H. Bass 2, SEc NW SW 8-1n-16w, and W. J. Howard 2, 17-1n-16w. Amerada Petroleum Corporation's Anton Vesely 1, SW NE 7-4n-15w, wildcat, is preparing to run core tests after topping Massive sand zone at 9541 feet. Cores taken at 9432-52 feet recovered porous sand with salt water.

Lincoln County: The largest well and the seventh producer for the Brookhaven field is Roeser & Pendleton's W. Lonnie Case 1, 8-7n-7e, which is flowing 1000 barrels a day through 5/16-inch choke from a 35-foot sand section at 10,262 feet.

With prospecting in the state taking the lead in this area 2 tests are in operation and one is readying up. The California Company's Mary Parnell McDaniel 1, NEc SE 17-6n-8e is drilling below 1713 feet in its drive for the potential producing zone at 10,000 feet. Roeser & Pendleton's Columbus Lumber Company 1, 20-6n-6e, is drilling below 1200 feet, while Humble Oil & Refining Company's Lincoln County Board of Supervisors 1, 16-8n-5Z, is clearing location for a 10,000-foot test. In the Brookhaven field, 5 operations are drilling or getting ready. Roeser & Pendleton's W. Lonnie Case 1, NE SE 8-7n-7e, is preparing to run production tests after reaching the Massive sand zone below 10,370 feet. No shows have been reported. California's John Howard 1, 8-7n-7e, is waiting on cement after running casing to 1823 feet, while Bert Smith 1, SEc 5-7n-7e, is drilling surface hole. Two other tests by California and Sun Oil Company are also projected in Brookhaven.

Forrest County: The Superior Oil Company's Cassie Bradford 1, SEc SW NW 1-3n-13w, is drilling below 8315 feet with no shows. Chalk was topped at 5817 feet.

Clarke County: Sun's Long Bell Petroleum Company 2, NWc NE 17-2n-17e, wildcat, is drilling below 2978 feet with no shows. Chalk zone was topped at 2635 feet.

Jasper County: Harold L. Duck & The Atlantic Refining Company's Masonite Corporation 1, SW SW 9-10n-11w, Massive sand test, is drilling below 7267 feet in black shale. The Tuscaloosa zone was topped at 6226 feet. No shows have been reported so far. Southern Oil Production Company's J. E. King 1, SE SE 30-1n-12e, is bottomed at 7299 feet waiting for orders with no shows indicated. In the Heidelberg field Midstates Oil Corporation's Lightsey Unit 1, SWc NE NW 19-1n-13e, has been completed with an initial production of 50 barrels of oil per day. R. W. Landrum's J. F. Bethea 1, SE NE NW 13-1n-12e, is also getting ready to complete after swabbing commercial amounts of oil from the Eutaw zone at 4768-4895 feet.

Marion County: Humble's E. A. Ball 3, NWc 20-2n-14e, which is attempting to develop production from the Comanchean sand zone below 9900 feet, recovered only mud and salt water on most recent drill-stem test at 9904 feet. In previous test at 9936-37 feet slight shows of oil with heavy input of mud and salt water were recovered.

Yazoo County: Southern Natural Gas Company's Gammill Investment Company 2, SE SW NE 6-9n-4w, wildcat, was running core tests in the 7400-foot zone of the Comanchean horizon. No

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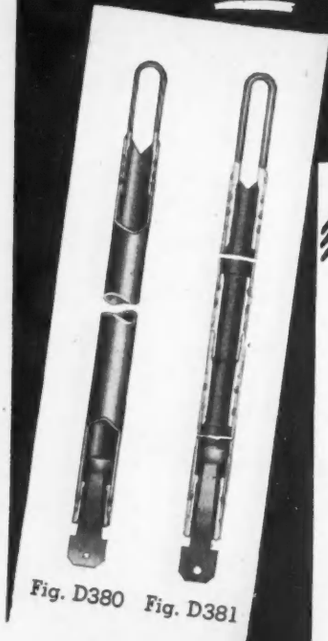

Fig. D380 Fig. D381

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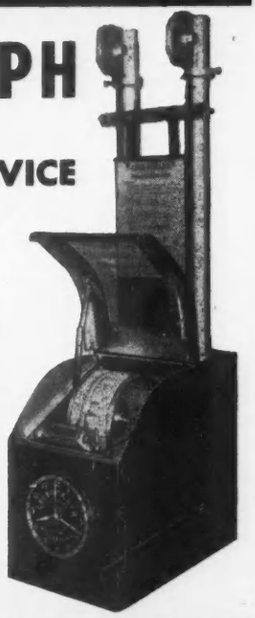

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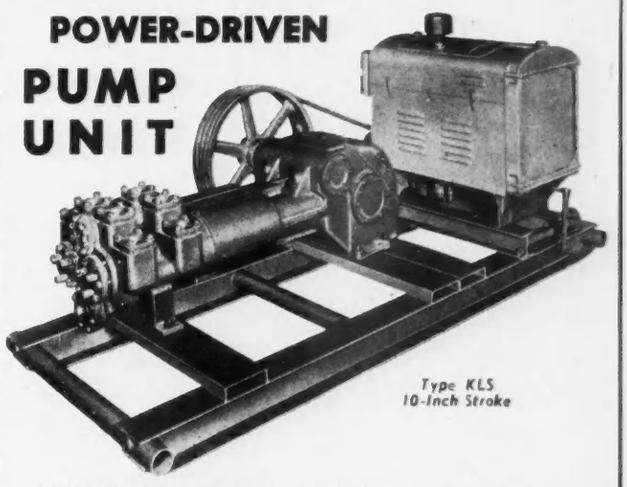

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NEW ORLEANS HOUSTON DALLAS

shows have been reported in the lower horizons. Three drill-stem tests taken between 6502-76 and 6777 feet had slight shows of heavy oil and gas but there has been no indication of commercial possibilities. In the Tinsley field Union Producing Company's Jennie Stevens 13, NWc 12-10n-3w, has been successfully drilled deeper and is now producing from the Stevens sand at 5375-88 feet.

Florida

O. D. Robinson's State Well 1, NEc NW 29-59s-40e, Monroe County, 830 feet offshore at Key Largo, has been abandoned after all efforts to exploit shows in the 10,000-foot zone failed. The well had been drilled to 12,051 feet and then plugged back to 10,395 feet in a lime and dolomite section. On the last drill-stem test at 10,168-185 feet only faint shows of oil and gas were noted while salt water input was very heavy.

Gulf's Refining Company's State 1, SWc 2-67s-29e, wildcat, is setting 9⅝-inch casing to a total depth of 8027 feet after running electrical log. Last cores taken at 7925-35 feet recovered lime and anhydrite with nothing encouraging indicated.

Levy County: Sun Oil Company's J. P. Goethe 1, SWc 31-14s-17e, 5000-foot prospect, is drilling below 3910 feet with no shows reported.

Osceola County: Humble Oil & Refining Company's N. Ray Carroll 1, SE SE 10-27s-34e, wildcat, is drilling below 5637 feet. Cores taken at 5499-5542 feet recorded sand with no shows.

Hernando County: The Ohio Oil Company's Hernasco Corporation 1, NWc 19-23s-18e, wildcat, is drilling below 8057 feet with no shows.

Hillsborough County: Humble's T. S. Jameson 1, NE NE 7-31s-22e, wildcat, was running core tests at 9690 feet with no shows reported.

Dixie County: Stanolind Oil & Gas Corporation-Sun Oil Company's Perpetual Forest 1, NW NW 5-11s-11e, wildcat, is drilling below 5312 feet. No shows have been reported.

Alabama

Glen D. Rose Oil & Gas Company's First National Bank of Birmingham 2, NW SE 30-12s-7w, Walker County, is drilling below 2213 feet with no shows.

Winston County: Glen D. Rose Oil & Gas Company's First National Bank of Birmingham 3, SWc 7-12s-8w, was bottomed temporarily at 1860 feet to finish up repair job on casing. No shows have been reported.

Pike County: Aubrey M. Poynter and J. S. Sawyer have staked W. F. Spencer 1, wildcat, in C NE NW 26-8n-20e, which will go to 3500 feet. It is on a structure worked with gravity meter.

Chapman Oil Company Buys 14 Michigan Wells and Leases

Chapman Oil Company, Mt. Pleasant, Mich., has purchased 14 oil wells, leases, field equipment and yard materials from Freeman Oil Company. Price of the transaction, involving about 250 barrels of stripper production daily, was reported at $105,000. Freeman retained about 8000 acres of wildcat leases.

Guy E. Chapman, president of the company, also announced purchase of a half interest in a 64-well shallow sand field in Callahan County, Texas, formerly owned by the Dean Brothers. Chapman said a water-flood program will be commenced immediately in the shallow field. John Edahal of Mt. Pleasant, Chapman's production engineer, will take charge of the Texas project. George Taylor, former independent operator and recently released from military service after five years, has succeeded Edahal as superintendent of the company's Michigan production operations.

Two Tests Planned in Michigan Deep Gas-Distillate Area

Two locations for immediate drilling have been surveyed in the new Garfield-Orient deep gas-distillate play in Clare County, Michigan, where the lease control is largely in the hands of The Pure Oil Company and Sohio Petroleum companies. Plans call for drilling on diagonal 80-acre units. Pure's Freer 1, N½ NW SW 18-17n-6w, discovery, gauged 26½ million cubic feet open from a 24-foot sand section in the Detroit River series at 5038-70 feet.

Pacific Coast AIME Group Plans Two-Day Fall Meet

A technical session is planned by the new Pacific Petroleum Chapter AIME for October 24-25 at the Ambassador Hotel, Los Angeles. The program committee comprises A. W. Gentry, Long Beach Oil Development Company; W. S. Eggleston, Union Oil Company, Norris Johnston, General Petroleum Corporation; and W. Tempelaar-Lietz, Shell Oil Company, Inc.

Talks on "Geology and Development of Cymric Oil Field, Kern County," by J. H. McMasters, and "Military Pipe Lines — European Theater," by A. F. Woodward will feature the June 19 meeting of the chapter at the University Club, Los Angeles.

Hearing Testimony

Testimony taken by the Special Senate Petroleum Committee at its hearing on postwar petroleum requirements and the war emergency pipe line systems and other facilities is now available from the Superintendent of Documents, Government Printing Office. Postwar requirements, 119 pages, is available at 25 cents and that on pipe lines, 431 pages, at $1 per copy.

An additional $7500 for completion of the investigation was granted last week by the Senate. Senator O'Mahoney had asked for an additional $10,000.

Gas Injection Planned

The Mid-Continent Petroleum Corporation will start a gas injection program immediately at Jury 3, NE SE SE 26-10n-3w, in the South Moore field of Cleveland County, Oklahoma. It will be an initial experiment in possible unitization and repressuring for the entire field. The Oklahoma Corporation Commission granted a petition of the company and agreed that the present production of 92 barrels of oil a day be transferred to three other wells on the lease. M. B. Penn, engineer for the company, told the Commission the company will start with an initial 3 to 6 million cubic feet of gas daily. Gas will be injected into the Bartlesville-Burgess sand zone through present perforations.

☆Canada

Imperial Oil Acquires Crown Reservations Near Edmonton

Imperial Oil Ltd., continuing to expand its operations on the Central Alberta Plains, has taken up 3 new crown oil and gas reservations totalling 524,112 acres, surrounding Edmonton and lying north and west of the company's 1½ million-acre Viking-Kinsella-Provost holdings. The new holdings extend 30 miles east of Edmonton, 15 miles south, 5 miles west and up to 32 miles north. Rights are in Twp. 50 Rges. 19 to 25w4; Twp. 51 Rges. 19 to 25w4; Twp. 52 Rges. 19 to 25w4; Typ. 53 Rges. 19 to 25w4; Twp. 54 Rges. 19, 20, 24 and 25w4; Twp. 55 Rges. 23 to 25w4; Twp. 56 Rges. 22 to 26w4; Twp. 57 Rges. 22 to 26w4; and Twp. 58 Rge. 25w4.

Standard Oil Company of California's Princess-CPR 12-22A, lsd 1 22-20-12w4, south extension venture in the Princess Devonian Dolomite field, drill-stem tested over 2000 mcf daily of gas in a narrow porous zone at top of the Dolomite, but has found water plus a show of oil in the underlying porous from which oil wells in the area are producing, despite the fact the well logged 5 feet higher than the field's oil discovery. A drill-stem test at 3993-4002 feet yielded 1010 feet of fluid rise in 1 hour (200 feet of oil, 810 feet of gassy, salt water). The well is deepening for test of the lower Devonian.

Imperial Oil has obtained the first important crude showing in the Viking sand of the Upper Cretaceous, source of the largest natural gas reserve yet established on the Western Canadian Plains, and has made a new gas discovery in the Viking at a wildcat 60 miles southeast of the Viking-Kinsella gas reserve.

Imperial-Kinsella 14, lsd 7 28-45-9w4, 4 miles south of the most southeasterly gas well in the Viking-Kinsella Gas Reserve, has provided the first promise of oil production from the Viking sand. An 80-minute drill-stem test of the sand through 5½-inch drill-pipe gave a 520 foot rise of fluid, top 120 feet gas-cut drilling mud, bottom 400 feet water-free crude oil, gravity estimated at between 30 and 32.

Boosting its Central Alberta Plains holdings to over 600,000 acres, Shell Oil of Canada has acquired option to purchase 300,000 acres of freehold oil and gas rights owned by Western Minerals Ltd. The rights checkerboard a wide area, 90 miles east to west, and up to 60 miles from south to north, between Ranges 4 to 26w4 and Townships 50 and 60. Shell previously secured 316,000 acres within the easterly portion of this region, and has been carrying out gravity meter and seismograph work.

Phillips Plant Enlarged

Phillips Petroleum Company and associates have increased the capacity of their absorption-type of natural gasoline plant in the Fullerton field, Andrews County sector of West Texas, from 28 million to 40 million cubic feet daily. The plant has been enlarged twice since it began operating in March, 1945, and is processing sweet and semi-sour gas.

EXPLORATORY COMPLETIONS

ARKANSAS WILDCATS

Little River County—Failure: K. E. Merren's Jas. D. Shaver 1, 36-12s-31w, Annona chalk 76, Travis Peak 2950, abnd 3022.

Ouachita County—Failure: C. A. Lee's Morgan 1, ne ne sw 2-15s-19w, Nacatoch 1400, Tokio 2305, abnd 2330.

CALIFORNIA WILDCATS

Kern County—Failures: Barnsdall Oil Co.'s Bates 2, 20-25s-19e, Devils Den area, abnd 1551.

The Hancock Oil Co.'s Jobe Community 1, 7-30s-29e, Edison area, Santa Margarita 3940, abnd 3989.

Richfield Oil Corp.'s M. & L. Fee 3, 18-29s-21e, Temblor area, abnd 2605.

Merced County — Failure: Don Pedro Oil Co.'s 1, 9-6s-9e, Patterson area, Kreyenhagen 3455, Domengine Silt 3545, abnd 4400.

Tulare County—Failure: Pacific Central Oil Co.'s Finch 14, 32-23s-23e, Trico area, abnd 3400.

Orange County—Failure: Texas Co.'s Vejar 1, 35-3s-9w, Richfield area, abnd 3564.

FLORIDA WILDCATS

Liberty County—Failure: Pure's Gex-Lewin 1, Nec 24-5s-6w, abnd 4744.

Monroe County—Failure: O. D. Robinson's State Well 1, nec nw 29-59s-40e, L. Cret. 7020, abnd 12,051.

ILLINOIS WILDCATS

Clay County—Oil Discovery: N. V. Duncan's Gibson 1, nw nw se 2-4n-7e, flow 264 bbls fr Rosi. 2892-2902, td 2984.

Cumberland County—Failure: Nat'l. Assoc. Pet.'s Young 1, nw nw sw 4-10n-7e, abnd 2250.

Marion County—Failure: Paul Doran's Betts 1, c ne ne se 4-4n-1e, abnd 1890.

INDIANA WILDCAT

Gibson County — Failure: George Engle's Hillyard 1, sw sw sw 27-2s-10w, abnd 2166.

KANSAS WILDCATS

Barton County—Failure: Texas Co.'s Fish 1, sw sw sw 16-19s-12w, abnd 3565.

Rice County — Failure: Bridgeport's Boldt 1-A, ne ne nw 19-18s-9w, abnd 3253.

Rooks County—Failure: Donald T. Ingling's Amos 1, nw nw sw 22-9s-18w, abnd 3628.

Saline County — Discovery: W. J. Page's Hagg 1, nw sw se 32-14s-2w, potential 91 bbls oil, 22 bbls wtr fr Viola, 3246-52, td 3252.

WESTERN KENTUCKY WILDCAT

Daviess County—Failure: Ransbottom's Barrett 1, 7-O-32, abnd 829.

NORTH LOUISIANA WILDCATS

Caddo Parish—Failure: A. Paul Gilbert's Thompson 1, 15-22n-16w, abnd 2955.

Richland Parish—Failure: F. B. King-C. W. Sharp's Arthur Thompson 1, sw nw 16-17n-9e, Chalk 3136, Gas Rock 3152, no Tuscaloosa or Paluxy, Anhydrite 3540, abnd 3570.

Sabine Parish—Failure: Carter's La. Long Leaf Lbr. Co. 1, c sw sw 27-7n-10w, Chalk 3238, Buckrange 3700, Eagleford 4790, Travis Peak 9115, abnd 9216.

SOUTH LOUISIANA WILDCAT

Cameron Parish—Failure: Magnolia's Cameron Meadows 44, e of nwc 27-14s-13w, 1 mi se Cameron Meadows prod, abnd 8675.

MICHIGAN WILDCATS

Allegan County — Failures: J. E. Hood's Sesyskowski 1, ne se ne 20-1n-16w, Traverse li 1102, abnd 1265.

S. L. Findley's Kaylor 1, se ne ne 2-1n-14w, Traverse li 1338, abnd 1375.

Superior's Shafer 1, sw se se 35-1n-12w, abnd 1490.

Clare County — Garfield Gas-Distillate Discovery: Pure's Freer 1, n½ nw sw 18-17n-6w, Richfield sd 5038, gas pay 5038-64, wtr 5079, flow 26,801,000 ft gas, 100 bbls 52-gr dist on 1 mln ft per day withdrawal rate, td 5307.

Huron County—Failure: Pure's Stapelton 1, n½ nw sw 22-17n-15e, Niagara, abnd 5700.

Kent County—Failure: Fisher-McCall's Coalter 1, sw sw nw 15-10n-12w, abnd 2353.

Missaukee County — Failures: Gordon Oil Co.'s State A-1, ne ne se 31-23n-8w, abnd 1478.

McClure Drlg. Co.'s Jameson 1, ne nw nw 31-22n-7w, Dundee li 3966, abnd 4061.

Montcalm County—Failures: Union Drlg. & Prod. Co.'s Robinson 1, se sw ne 16-10n-6w, abnd 3302.

West Michigan Consumers Co.'s Robinson 1, ne ne sw 28-11n-9w, abnd 1166.

MISSOURI WILDCAT

Perry County—Failure: Ward et al's Scott 1, c ne ne 21-36n-11e, abnd 713.

OKLAHOMA WILDCATS

Cotton County—Oil Discovery: Bridwell's Houghton 2, sw nw nw 23-3s-11w, flow 90 bbls oil fr Penn sd 1484-94, td 2851.

McClain County—Oil Discovery: Carter's Thompson 1, ne se 26-8n-4w, flow 1475 bbls of oil fr Hunton 9970-10,035, td 10,592.

WEST TEXAS WILDCATS

Andrews County—Oil Discovery: Shell's A. Nelson-Humble 1, c ne se PSL 8, blk A-40, elev 3335, anhy 1480, Yates 2850, Grayburg 3920, San Andres 4170, San Angelo 5440, Wichita-Albany 7008, base Permian 7990, Fusselman 8990, Montoya 9386, Simpson 9660, Ellenburger 10,380, granite-wash 10,585 ft, flowed 479 bbls 43-gr, 36 bbls acid residue, gor 373/1, via 20/64-in, 500 gals mud acid in Ellenburger open hole 10,384-10,606.

Crockett County — Failures: Garrett M. Smith's L. B. Cox Jr. 1, 990 snl 330 ewl I&GN Ry. 26, blk 2, elev 2209, San Andres 947, abnd 1170.

Garrett M. Smith's V. B. Cox 1, se se se T. C. Ry. 39, blk ST, elev 2207, San Andres 900, abnd 1125.

Howard County—Failure: Barron Kidd-A. W. Cherry's Hamlin 1, se se se T&P Ry. 15, blk 33, T-2-N, elev 2668, anhy 1370, Yates 1916, bromn lime 3060, San Andres 3310, abnd 3762.

WEST CENTRAL TEXAS WILDCATS

Callahan County—Failure: R. B. Tamblyn Dev. Co.'s Harlow 1, 3450 snl 2900 wel Walter Converse sur 333, elev 1738, abnd 1732.

Coleman County — Gas Discovery: H. T. Owen-Rhodes Dr. Co.'s J. D. Gorman 1, 1401 nsl 467 ewl nw¼ T&NO 31, blk 2, 2¼ mi sw of Williams fld, elev 1993, 2,500,000 gas, spray oil, fr Gardner (Strawn) sd 3714-22, shot 50 qts 3714-22, td 3728.

Jones County—Failure: Oscar Donley et al's Mullins 1, 1336 snl 330 wel se¼ sect 43, Orphan Asylum Lands, elev 1733, abnd 2460.

Shackelford County—Failures: H. V. Scholl et al's M. Davis 1-A, 225 out nec sw¼ T&P Ry. 23, blk 12, abnd 1444.

H. V. Scholl et al's Davis 1, T&P Ry. 23, blk 12, abnd 1621.

Taylor County—Failure: West Central Dr. Co. et al's Hunds 1, 330 wel 2200 snl sbdn 2, Jose Gabo sur 128, abnd 2384.

NORTH TEXAS WILDCATS

Cooke County—Failure: Harry D. Kahn et al's Franklin 1, 2319 nsl 900 ewl of A. Rodriquez sur, elev 843, abnd 3698.

Jack County—Failure: Continental's Cherryhomes 1-B, 3500 nsl 990 wel Alex Parks sur, abnd 6820.

Montague County — Failure: Continental-Sinclair Prairie's Garlington 1, 990 ewl 1900 snl TE&L Co. 3422, elev 1132, Bend 6110, Mable Falls 6415, Viola 6860, Simpson 7020, Ellenburger 7271, abnd 7393.

Wichita County—Failures: D. H. Bolin et al's Blainer 1, 6800 nsl 1500 wel Lewis Powell sur, abnd 2006.

A. E. Blair et al's Brown 1, 150 out sec w 100-ac of blk 311, Waggoner Colony Lands, abnd 2020.

Bell O&G Co.'s Kasper 1, 330 s 330 e of swc of S. Denison (TE&L) sur, but in BS&F Ry. sur, abnd 3069.

Young County—Failure: Anzac Oil Corp. et al's Graham 1-D, 6200 ewl 3407 nsl Fractional Sect. 3410-C, TE&L Co. sur, elev 1167, abnd 2712.

EAST TEXAS WILDCAT

Navarro County — Failure: Woodbine Oil Corp.'s Burke 1, 1900 fr m/s/swl 800 fr sel of Thomas Edmondson sur, elev 375, Wolfe City 1763, abnd 2080.

SOUTHWEST TEXAS WILDCATS

Jim Hogg County—Failure: Humble's Mestena O&G Co. 5-B, 467 fr el 210 fr sl sect 4, Fowler & Rankin sbdn Palitos Blancos Gr. 467 n of sl 17,140.78-ac lse, in Weil area, abnd 5672.

McMullen County—Failure: Stanolind's E. M. Henry 1, 660 fr nel 1980 fr sel Noah Scott sur 42½, on 1079.85-ac lse, abnd 6528.

Starr County—Oil Discovery: W. H. Holland's Roos-Bennett 1, 330 fr n&el 120-ac lse, 1830 fr el 2600 fr nl sh 100 porc 93, se Boyle, nw Garcia flds, pay 2959, perf 2961-67½, flow 147.37 bbls 24-gr oil, ¼-in, gor 600/1, td 3434.

LOWER TEXAS COAST WILDCATS

Jim Wells County — Failure: Magnolia's Boerjan Unit 1, 632 fr wl 664¼ fr nl lot 10 blk 12, on 830.19-ac lse, 2 mi e La Gloria fld, 1½ mi s Blucher fld, 1¼ mi nw Wilson fld, abnd 8850.

Live Oak County—Failure: Herman Bros. et al's H. Wieding 1, 330 fr n&wl R. Triplett sur 151, 3½ mi ne Oakville, 40-ac farmout, sw in Wilcox, abnd 7011.

UPPER TEXAS COAST WILDCATS

Ft. Bend County—Failure: The Gray Wolfe Co. et al's G. J. Lee 1, 330 fr n&wl 40-ac tr. Wm. Pettus sur, s side Juliff prospect, abnd 7516.

Harris County—Failures: Allaun & Richardson's F. Dopslauf 1, 781.8 fr nl 499.6 fr el ne 40 ac of se¼ sect 22, WCRR sur, abnd 8014.

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Jefferson County—Failure: A. H. & C. L. Rowan's Beaumont Bldg. & Loan Co. 1, 604 fr sl Thias 4.7-ac lse 742 fr wl Pinchback 25.25-ac lse, C. Williams sur, abnd 8725.

Montgomery County — Failures: Ashland O&R Co.'s Eliz. Gunter et al 1, 1400 fr sl 203.7-ac tr and Neil Martin sur, abnd 4020.

E. H. Stafford's Fraser-Campbell 1, 660 fr wl 330 fr nl 1980 fr el sect 32 J. M. de la Garza sur, 1130-ac lse, Willis area, abnd 5038.

WESTERN CANADA WILDCAT

South Alberta Plains — Pinhorn Failure: McColl-Frontenac-Union of California's No. 16-D-29-1-9, lsd 16 29-1-9w4th, abnd 3236 in Madison lime.

WILDCAT STARTS

ARKANSAS

Little River County: Robt. W. O'Meara's Ed Wood Heirs 1, 7-14s-28w, lcn.

CALIFORNIA

Kern County: Beverly Trading and Exploration Co.'s F.O.B. 1, 31-29s-21e, Temblor area, dr.

Independent Exploration Co.'s Temblor 4, 17-29s-21e, Temblor area, dr.

Cleveland Oil Co.'s Ten Eyck 1, 29-30s-29e, Mt. View area, bldg rig.

Richfield Oil Corp.'s Janes-U.S.L. 1, 11-28s-19e, McDonald Anticline area, dr.

Rocket Pet. Co.'s Abrams 1, 26-25s-26e, Jasmine area, ru.

Richfield Oil Corp.'s McGrath-U.S.L. 1, 13-28s-19e, McDonald Anticline area, grade.

Standard's 72-29, 29-29s-29e, Kern Bluff area, ru.

Santa Barbara County: Barnsdall-Honolulu Oil Corp.'s Petan 1, 5-5n-32w, Gaviota area, grade.

Monterey County: Texas Co.'s Aurignac 1, 4-23s-10e, Los Lobos area, lcn.

ILLINOIS

Effingham County: L. Lichlyter's Wheeler 1, ne se nw 16-6n-7e, lcn.

Fayette County: Claud Neon Light et al's Poland 1, 31-6n-2e, lcn.

Marion County: C. R. Winn's Dedmond 1, nw ne se 22-2n-1e, lcn.

Shelby County: Sohio's Strohl 1, nw sw ne 17-10n-4e, lcn.

Wabash County: Central Pipe Line's Bump 1, ne ne sw 9-3s-14w, lcn.

Washington County: Wiser Oil's Kasban 1, nw sw ne 34-2s-1w, lcn.

Ben Taylor et al's Lanczek 1, ne ne ne 12-3s-2w, lcn.

White County: W. C. McBride's Proctor 1, sw ne nw 17-3s-14w, lcn.

KANSAS

Barber County: Drillers Gas & Huber's Skinner 1, c e½ ne ne 27-31s-14w, lcn.

Barton County: Magnolia's Putnam Estate 1, nw nw se 17-17s-13w, lcn.

Ellsworth County: Gough Davis' Tomsu 1, se ne se 19-15s-10w, dr 803.

McPherson County: Fawcett et al's McBride 1, nw sw se 31-19s-2w, dr 1000.

Pawnee County: Ben F. Brack & Huber's Rutherford 1, sw ne nw 8-20s-16w, lcn.

Saline County: Dulah W. Geary's Beil 1, sw se se 17-14s-3w, sur hole.

Sumner County: Texas Co.'s Etchison 1, sw se sw 8-32s-1w, lcn.

Wichita County: E. M. Swearer et al's Deal 11, ne ne sw 25-18s-37w, rur.

NORTH LOUISIANA

Franklin Parish: Stanolind's Jone Lord 1, 20-16n-8e, lcn.

Madison Parish: Rogers Lacy's Bryant 1, c sw sw 28-17n-10e, 3500-ft test.

Red River Parish: Carter's Long Bell Lbr. Co. 1, c nw ne nw 24-13n-10w, Paluxy test.

SOUTH LOUISIANA

Assumption Parish: Sun's Rentrop-State 1, 2121 n 2683 e swc 31-15s-14e, off nw flk old Amelia Prospect, 6 mi w Chacahoula fld, 12,500-ft test.

MICHIGAN

Allegan County: C. W. Kendall's Leach 1, se ne nw 35-1n-16w, rig.

Leonard C. Sleep's Arndt 1, sw sw nw 11-3n-14w, dr.

C. W. Cook's Collier 1, sw nw sw 31-3n-12w, rig.

Calhoun County: C. A. Perry's Kirkland 1, ne sw se 34-3s-7w, dr.

Isabella County: Cities Service's Lattimore 1, sw ne ne 3-15n-3w, lcn.

Newaygo County: Ashby Drlg. Co.'s La-Vallee 1, sw ne nw 33-16n-11w, dr.

MISSOURI

Atchison County: Dan Short's Griffin 2, ne ne nw 15-65n-40w, lcn.

Cass County: T. M. Christie's Martensen 11, se se se 17-45n-33w, lcn.

NEW MEXICO

San Juan County: P. B. English-Byrd & Frost's Kutz Canyon-Federal 1, c nw nw 4-27n-10w, mim for 6500-ft test.

OKLAHOMA

Cleveland County: J. E. Trig's Urbansky 1, ne nw se 19-10n-2w, lcn.

Cotton County: R. L. Farris' Ah-too-was-su-ah-he 1, se sw ne 2-4s-11w, lcn.

Garvin County: Mid-Continent's Hart 1, se se se 23-3n-2w, dr 2040.

R. J. Castleberry's Smith 1, nw ne sw 20-4n-3w, c&p.

Grant County: Frances W. Callery et al's Hajek 1, sw sw se 19-28n-4w, lcn.

Okfuskee County: Loftis Drlg.'s Keneda Unit 1, ne ne se 14-12n-9e, lcn.

Pawnee County: Paul R. Nagle's Wholey 1, nw nw se 15-22n-5e, lcn.

Payne County: Deep Rock's School Land 1, sw sw nw 16-18n-3e, lcn.

Pontotoc County: Texas Co.'s Gray 1, ne ne sw 18-4n-5e, rur.

Stephens County: Mercury Drlg.'s Gentry 1, ne ne ne 5-1s-5w, rur.

WEST TEXAS

Crockett County — Noelke Field Outpost: Curtis Norman et al's Shannon 1, 330 out sec sect 27, blk GG, M. T. Wilton sur, 1¼ mi n of gasser, 4200-ft cable test, outpost Noelke fld.

Upton County: Wm. W. Gruber-Harry A. Ringle's A. L. Mayhew-Superior 1, 880 ewl 1700 snl se GC&SF Ry. 2, blk W, 4 mi se prod, lcn.

WEST CENTRAL TEXAS

Callahan County: Boyd Gillespie et al's P. G. Hatchett 1, 200 snl 900 ewl sect 1, Seale & Morris sur, 2000-ft cable test.

Jones County: Transcal Dr. Co.'s Emma Spraberry 1, nw nw se sect 17, Orphan Asylum Lands, 3800-ft Canyon cable test.

NORTH TEXAS

Archer County: R. C. Dublin et al's R. Campbell 1, 400 out swc BBB&C Ry. sur, 1100-ft rotary test.

Clyde Gibson Dr. Co.'s L. F. Wilson-McCrory 1, 330 out swc lot 1, sect 35, ATNCL sur, 4800-ft rotary test.

Clay County: J. P. Owen et al's T. S. Adams 1, 2112 ewl 1293 snl of 162.9-ac tr and blk 148, Byers sbdn, 3200-ft rotary test.

J. B. Wells et al's fee 1, 1100 fr nel 2640 fr nwl blk 32, Bacon sbdn, 200 n of river, 220-ft cable test.

Cooke County: Frederick Electric Co.'s John Streng 1, 750 snl 535 ewl of 96-ac tr, or 3035 fr sw 3000 fr sel of S.P. Ry. 5, 1200-ft rotary test.

Trout-Hansen Prod. Co.'s J. B. Pace 1, 330 snl 1000 ewl M. H. Reed sur, 2500-ft rotary test.

Akin-Dimock et al's E. C. Ramsey-Texaco 1, 150 fr m/s/nl 150 fr m/s/el of F. E. Parks sur, sd to abnd 1450.

Haskell County: Fred M. Manning's F. A. Adair 2, 467 fr m/n/sl 467 fr m/e/el of 157-ac lse, H&TC Ry. 7, blk 3, 3250-ft cable test.

Wichita County: Akin-Dimock et al's Eugene Sherrod 1, 150 out nwc labor 2, lg 4, Denton CSL, 2000-ft rotary test.

D. H. Bolin et al's J. M. Goins 1-B, 1320 nsl 900 ewl blk 47, Red River Valley Farm Lands, 2050-ft rotary test.

Young County: L. T. Burns et al's W. B. Howard 2, 600 nsl 150 wel n½ sect 1480, TE&L Co. sur, 950-ft test.

Hassie Hunt, Tr.'s Mrs. W. M. Harrison 1, 2196 out swc F. Jaimes sur, 3300-ft rotary test.

Robert C. Davis et al's Baldwin-Lovett 1, 1083 ewl 750 snl sect. 207, TE&L Co. sur, deep pay test 5200-ft.

SOUTH CENTRAL TEXAS

Dimmett County: Texas Co.'s Catarina Farms Co. 1, 660 fr swl 1980 fr sel Ellen Hart sur, lot 1, sect 70, ru for 6000-ft test.

Williamson County: J. O. Fox et al's Annie and Arthur Kerlin 1, 330 fr s&wl 126-ac lse, Pedro Zara sur, lcn.

SOUTHWEST TEXAS

Duval County: F. P. Zoch, Jr.'s Henry C. Freise et al 1, 467 fr n&el lot 3 blk 85 on 144.58-ac lse, 5900-ft test.

Jim Hogg County: Texas Co.'s T. T. East 1, 990 fr nl 2310 fr el 330 fr wl blk 8, Don H. Marsh oil sbdn T. T. East ld, Simon de Ynojosa Gr, 3200-ft test.

McMullen County: Jose C. Palmer's Cooper & Martin 1, 330 fr n&el ne¼ sw¼ sect 6, 80-ac lse on Hagist Rch, lcn.

Webb County: C. H. Lewis' Marshall de Spain 1, 699 fr el 502 fr nl 80-ac lse, 699 w of el sur 460, 3000-ft test.

Zapata County: T. B. Hoffer's Acela V. de Gomez 1, 3149 fr nwl 990 fr swl sh 3, porc 31-32, lcn.

LOWER TEXAS COAST

Brooks County: La Gloria Corp. et al's Mrs. L. J. Lipps 1, 467 fr el 9000 fr nl El Perdido Gr, mi for 8500-ft test.

Jackson County: John B. Coffee's W. L. Hodges Est. 1, 330 fr sl 467 fr wl 295½-ac lse, LaWard Farms first sbdn, I&GN sur 6 & 7 on 295½-ac lse, ½ mi s N. LaWard prod, ru 5250-ft test.

Wm. M. Nicholls' John M. Bennett 1, 330 fr swl 400 fr nel 1280 fr sel 40-ac tr out of Twin Lakes Pstr sbdn, Valentin Garcia Gr, near W. Rch prod, 6300-ft test.

San Patricio County: Southern Minerals Corp.'s John R. & Floy L. Beasley 1, 990 fr sel 3200 fr nel 1004-ac lse, 335 fr nel M. G. Frazier sur, 5250-ft test.

UPPER TEXAS COAST

Chambers County: Jack W. Frazier's E. A.

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Ft. Bend County: W. L. Goldston's C. G. Roesler 1, 1500 fr sel 500 fr nel 80-ac lse, F. Forster sur sect 40, 7500-ft test, dr 2933.

WESTERN CANADA

Central Alberta Plains—Elk Point: Anglo Canadian, Home & C. & E. Corp.'s Elk Point 1, lsd 7 26-56-5w4th, dr.

Duvernay: Imperial Oil's Duvernay 1, lsd 6 30-55-11w4th, dr.

South Alberta Plains—Keho Lake: Okalta Oil's Keho 1, lsd 1 16-11-22w4th, dr.

Stirling: Imperial Oil's Stirling 2, lsd 7 13-7-20w4th, dr.

Pinhorn: McColl-Frontenac-Union of California's No. 4 10-1-8, lsd 4 10-1-8w4th, dr.

Shell Reorganization Changes In California Are Announced

Organization of the industrial relations and personnel department of Shell Oil Company in California into three sub-departments of personnel, industrial relations and public relations, was announced by F. E. Rehm, vice president.

W. E. Noble, manager of industrial relations and personnel in Los Angeles, has been named manager of personnel at San Francisco. A. F. Smith of the legal department becomes manager of industrial relations. E. A. Cunningham, recently appointed manager of public relations, continues in that position.

Otto M. Smith, who has been assistant manager of industrial relations and personnel, becomes assistant manager of the tax department.

Warren S. Gage, head of the wages and hours section of industrial relations at San Francisco, goes to Los Angeles as manager of industrial relations and personnel.

D. H. Filbert, administrative assistant in industrial relations and personnel, is assistant to the vice president.

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■ DRILLING and PRODUCTION Supt. Age 44, 27 years experience in drilling and production operations. 22 years supervisory experience in drilling (rotary and cable tools), completions, production developments, workover operations and flush and stripper production. References if desired. Address: Box 32, c/o The Oil Weekly, Houston, Texas.

NOTICES

GEOLOGICAL MAPS

Covering the Gulf Coast of Texas and Louisiana, showing all new discoveries and all dry holes drilled to April 15, 1946. Dry holes show well-elevations, total depths, and paleontological data. Oil fields colored green, gas fields red, sulphur purple, geophysical prospects yellow, depleted fields brown. Gulf Coast of Texas in one section size 4½ ft. by 10½ ft. Scale one inch to two miles. Price on paper $50.00, on linen $75.00. Louisiana Gulf Coast covers from T3N to the Gulf drafted in two sections, scale one inch to two miles. Hand colored the same as the Texas Gulf Coast. Size of each section 3½ ft. by 10 ft. Price of each section $25.00 on paper and $37.50 on linen.

STATEWIDE MAP COMPANY
J. 2-7304
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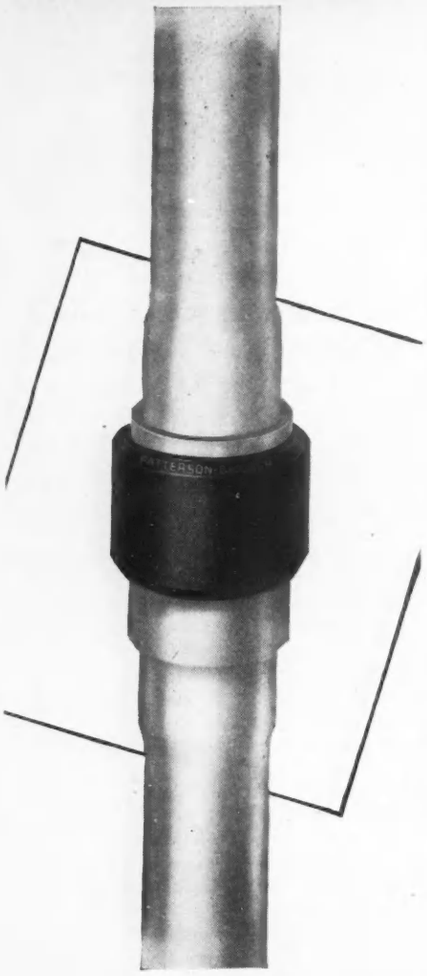

Cut Metal-to-Metal Contact

These oil-proof, insulating, wear-resistant, plastic tubing protectors are an integral part of the tubing collar. Made in all sizes, they prevent the metal-to-metal contact that causes many expensive "wet" jobs in pumping wells. Without this contact, the collars do not wear holes in the casing.

See Composite Catalog

Patterson-Ballagh TUBING PROTECTOR

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SQUEAKS from the BULL WHEEL

People Know Better

Two old maids were out riding when a little brown hen came lickety-split across a nearby field, a big red rooster in hot pursuit. Heedless of the approaching car, the hen plunged headlong under the wheels and was killed.

"The sweet thing," murmured one of the old maids. "She preferred death."

This Curious World

Twenty years ago the girls never thought of doing the things they do nowadays—which is why they didn't do them.

That party last night was swell while I lasted.

Executive ability is the art of convincing your wife that you hired the beautiful secretary because she types so well.

A child's question: "If the Lord gives us our daily bread, and Santa Claus brings the Christmas presents, and the stork brings the babies, then what's the use of having Daddy around?"

Now It's Our Divorce

Mrs. Newlywed: "Darling, I know something is troubling you and I want you to tell me what it is. Your worries are our worries now."

Mr. Newlywed: "Well, dear, we've just had a letter from a girl in Chicago, and she's suing us for breach of promise."

And Squeezed, Too

"Ever get pinched for going too fast?"

"Nope, but I've been slapped a few times."

Pass the Ammunition

She was watching the soldiers drill when a rifle volley rang out. With a scream, she shrank back into the arms of a soldier.

"Oh! I was so frightened by the rifles. Won't you forgive me?"

"It's quite all right, honey. Let's me and you go over and watch the artillery."

Celestial Spur

A minister accepted the call to a church in a town where many of the church members bred horses and sometimes raced them. A few weeks later he was asked to invite the prayers of the congregation for Lucy Bray. Willingly and gladly he did so for three weeks. On the fourth Sunday one of the deacons told him he need not do it any longer.

"Why?" asked the good minister with an anxious look. "Is she dead?"

"Oh, no," replied the deacon. "She won the steeplechase."

Flank Attack

"Oh," said she, shrinking away, "I'm afraid of that arm around me."

"Now, now," he replied soothingly. "Don't worry about that one. This is the baby you've got to watch out for."

Love and Learn

"Let's sit this dance out, honey. No one will be the wiser."

"Oh, yes; you will!"

The Whole Truth

"Your application for this job says you left your last position because of illness. Yet your statement to the medical examiner says you have had no recent sickness. How do you explain that?"

"Well, you see, my last boss got sick of me."

Life Is Like This

"I'd like to try on that hat over there."

"I'm sorry, Madam, but that's the lampshade."

Fantastic but Not Light

"Oops," said the dancer. "Sorry I stepped on your foot. I'm a little stiff from badminton."

"Well, I don't care where you come from; you're a lousy dancer."

For Heaven's Sake!

"What's that I smell, honey?"

"Sachet."

"Sachet? Why, that's something you put in drawers."

"Yes, I know. Uncomfortable, isn't it?"

The Paws that Refreshes

"I wonder if you could help a girl in trouble?"

"Certainly, you pretty thing. What kind of trouble do you want to get in?"

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Heavy duty, ruggedly constructed and extremely simple in design . . . Gets quick, accurate results . . . produces required speed with less effort . . . Cranks and heads of 100 CC and 15 CC size machines interchangeable . . . Meets *A.S.T.M. Standard Method D-96 and A.P.I. Code No. 25* requirements.

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MEN IN THE INDUSTRY NEWS

Lt. Col. Elmer W. Ellsworth of the Air Corps has returned to the U. S. and will soon return to his office as consulting geologist in Centralia, Ill. Since last fall he has been serving as technical supervisor of the Natural Resources Section of the General Headquarters of the Supreme Commander for the Allied Powers in Tokio, one of MacArthur's special staff sections. The section comprises 200 officers and War Department scientific consultants, and is advisor to MacArthur on all policy matters relating to the natural resources of Japan and Korea. Ellsworth was formerly president of the Midwest Association of Consulting Geologists, and executive secretary of the Independent Oil Producers Association of Illinois.

Lieut. Col. Ellsworth

»

J. J. Cosgrove was elected chairman of the board and chief executive officer of Continental Oil Company. Cosgrove was formerly vice president and chief counsel of the company.

»

R. B. Kelly, manager of the Illinois producing division of The Pure Oil Company, with headquarters at Olney, will return to Texas as head of the Fort Worth division. He will succeed **R. W. McIlvain, Jr.,** who will take charge of the company's Billings, Mont., division, relieving **H. C. O. Clarke,** who will be transferred to Olney as successor to Kelly. The changes become effective July 1.

»

M. O. Rife, Fort Worth division superintendent of production for Gulf Oil Corporation, will retire August 1 after 43 years of continuous service with the company and its predecessor. He will be succeeded by **E. A. Wahlstrom,** who has been assistant to Rife the past year.

»

John W. Naylor, Fort Worth producer and former oil editor of the *Fort Worth Star-Telegram,* has been promoted from colonel to brigadier general of the Texas National Guard Combat Company A, 49th division.

»

R. A. Niles has been promoted to superintendent of the construction engineering division of Standard Oil Company of Indiana's sales department to succeed **Robert Nerem,** resigned.

»

Oscar Shove has been transferred from the San Francisco office of Shell Oil Company to take charge of the company's public relations office in Los Angeles.

»

Thomas W. Parkin, retired production superintendent for Sun Oil Company, has been presented with a 50-year service pin.

Col. Daniel J. Martin, recently executive officer of the Chief of Ordnance, Washington, D. C., has joined the staff of Hughes Tool Company, Houston, and will direct a new and important phase of the firm's research program. Colonel Martin is one of the few U. S. Naval Academy graduates to become an instructor at the U. S. Military Academy at West Point. He is a native of Lowell, Mass., and a noted metallurgist. He was graduated with honors in science and engineering from the Naval Academy, Stanford University, and Harvard University, where he won a Ph.D. in science. His military career included supervision of manufacture of ordnance supplies, and during the latter part of the war he was ordnance officer in the European Theater. He has been honored with eight military awards, including the Legion of Merit and the Army Commendation Medal with Oak Leaf Cluster.

Col. Daniel J. Martin

»

Harold W. Hoots has resigned as chief geologist for Richfield Oil Corporation, Los Angeles, to establish an independent consulting practice. His post well be taken by **Rollin Eckis,** formerly assistant chief geologist. Hoots joined Richfield as chief geologist in 1937, prior to which he was assistant chief geologist for Union Oil Company. Eckis, also employed by Richfield in 1937, was formerly a member of The Texas Company's California geological staff.

»

John P. Vezzetti, vice president and treasurer, Sunset Oil Company, Los Angeles, has been elected president of the Petroleum Accountants Society of Los Angeles. Other officers elected are **K. D. Vandervort,** Amerada Petroleum Corporation, first vice president; **John F. Baumgaertner,** The Ohio Oil Company, second vice president; and **E. C. Rogers,** Union Oil Company, secretary-treasurer.

»

William Bodle and **L. E. Colburn** have been added to the staff of J. F. Pritchard and Company's chemical division at headquarters in Kansas City, Mo. Bodle will be assistant to **W. W. Deschner,** manager of the division. Colburn is a process engineer.

»

John C. Young, American-born Chinese petroleum engineer with the California Conservation Committee, has been awarded one of China's highest decorations, the Grand Order of the Cloud and Banner, for service in the China-Burma-India theater as a liaison officer for the U. S. during the Salween River campaign. Young, a Standford graduate, was a major in the Ordnance Department.

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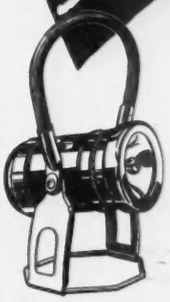

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FOR OIL FIELD HAULING

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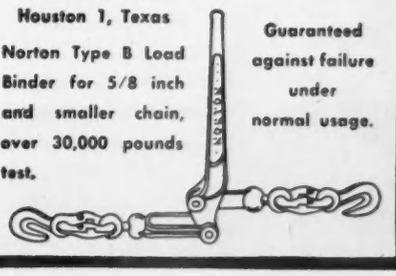
Norton Type B Load Binder for 5/8 inch and smaller chain, over 30,000 pounds test.



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MEN IN THE INDUSTRY NEWS

Gerrit A. Visser, formerly in charge of the manufacturing-engineering division of Manning, Maxwell and Moore, has been named vice president and works manager of Franks Manufacturing Corporation, Tulsa. Visser was born in the Netherlands, graduating from the University of Delft with an M.E. Degree. He came to America 21 years ago, and spent 12 years in the automobile industry. He assisted the engineering department of the Holley Carburetor Company and was works manager in charge of manufacturing and engineering of Oldberg Manufacturing Company, producers of automobile accessories, and vice president and general manager of the Francisco Products Company.

Gerrit A. Visser

Robert E. Hardwicke has returned to the private practice of law and has opened an office in the Sinclair Building, Fort Worth. He was formerly chief counsel for PAW at Washington.

Norman D. FitzGerald, independent oil operator of Abilene, Texas, spoke on "The Role of Economic Thinking in the Petroleum Business" before the University of Texas student chapter of the American Institute of Mining Engineers.

C. E. Riddell, W. H. Myers, E. E. Conant and E. T. Conant, all of Lubbock, Texas, have incorporated the Five Acres Drilling Company as a Texas corporation with a capital stock of $10,000.

J. E. North of Standard Oil Company of California has been elected a director of the San Francisco chapter of the National Association of Cost Accountants.

Edgar Waite, manager of the public relations department of Standard Oil Company of California; **A. E. Cunningham,** manager of public relations for Shell Oil Company; and **Don Gilman,** executive vice president of the Western Oil and Gas Association, were elected to the board of trustees of the American Council on Public Relations at the annual meeting in San Francisco.

Alfred B. Drastrup has been appointed manager of the Alloy Steel Sales Department of A. M. Byers Company, Pittsburgh.

Karl G. Wagner has been appointed district manager in charge of sales at Tulsa by Jarecki Manufacturing Company. He started with Jarecki in Bartlesville, Okla., in 1937, and in 1939 was transferred to Seminole. He moved to Tulsa as city salesman in 1942.

Robert (Bob) Schmidt, for three years with the Navy and recently released after serving in the Pacific, has returned to Technical Oil Tool Corporation, and assigned to cover the Rocky Mountain area, with headquarters in Casper, Wyo. He formerly represented the organization as an engineer in West Texas, New Mexico, Oklahoma and Kansas.

Bob Schmidt

Charles F. Redman, Jr., petroleum engineer for The Texas Company in the Erath field, Louisiana, has been transferred to the Fort Worth division office to specialize in reservoir engineering in West Texas.

Don M. Kerr of Kerr Engineering & Construction Company, Kilgore, Texas, has added a new department in Civil Engineering and dirt work to the company's services. **J .B. Moore, Jr.,** formerly connected with Tide Water Associated Oil Company, will be associated with him in the new work. The firm's major activity has been general construction, including installation of oil field machinery.

L. B. Neumiller, president of Caterpillar Tractor Company, Peoria, Ill., has been awarded the annual honorary membership in the Alpha of Illinois Chapter of Beta Gamma Sigma, national scholastic fraternity, for distinguished service in the field of commerce and industry. The fraternity corresponds to Phi Beta Kappa in the fields of literature, arts and sciences.

Ralph E. Oursler and **R. A. Lennox** are new district representatives of the Thermo-Aire Division of Evans Products Company, Detroit. Oursler will be central midwest representative with headquarters in Kansas City, Mo. Lennox is northern midwest representative with headquarters in Chicago.

Harold F. Towler is representing Byron Jackson Company and International Cementers, Inc., in London. He has been in India and Burma with the Burmah Oil Company for 25 years.

J. H. Dahlgren of Corpus Christi and **Lucian L. Morrison** and **B. L. Wier** of San Antonio have incorporated the Dalex Corporation to engage in oil operations in Texas, with a capital stock of $20,000.

M. L. Mayfield and **L. I. Mistrot,** both of Houston, have incorporated the Production Engineering Service with headquarters at Houston.

Edward C. Hoeflich has been appointed industrial sales promotion manager of Thermoid Rubber Division of Thermoid Company, Trenton, N. J. He has an experienced industrial background, being formerly connected with Ace Manufacturing Company as sales and advertising manager, and with Henry Disston & Sons as manager of the Steel Specialties Division. For 17 years he operated his own agency for industrial advertising in Philadelphia, and Camden, N. J.

Edward C. Hoeflich

»

W. H. Waters has been appointed assistant vice president of American Car and Foundry Export Company. He had been connected since 1940 with the purchasing department as liaison man between the company and the U. S. Ordnance Department.

»

A. S. Hayes, formerly vice president of Loffland Brothers Company, and **R. P. Sprague,** formerly general superintendent for the same firm, have formed the drilling contracting company of Hayes and Sprague, Los Angeles.

»

Robert F. Lee has been named Baton Rouge, La., representative of R. W. Byram & Company, specialists in oil and gas reports. The company's headquarters are in Austin with Byram in charge.

»

William T. Sesnon, Jr., California oil operator, has been reelected chairman of the Los Angeles Chapter of the American Red Cross. **Arthur C. Stewart,** vice president of Union Oil Company, has been elected to the executive committee.

Deaths

H. C. Olcutt, 70, former vice president of Skelly Oil Company and a member of that company's board of directors, died of a heart attack in Tulsa June 11. A native of New York City, Olcutt was former president of the Commercial Investment Company in Chicago and later was with the Blair Company in New York. He moved to Tulsa in 1931 from New York. He retired as vice president of Skelly in 1937.

»

J. H. McDonald, 77, founder of the Atlas Supply Company in 1910, died in Muskogee, Okla., June 6. McDonald founded the company in Muskogee, and in July, 1941, retired as its president, two years after sale of the company to the Wheeling Steel Corporation. Wheeling later sold the oil field supply firm to the Jones & Laughlin Steel Corporation in 1944.

»

Joseph W. Kisling, 62, employe of Sun Oil Company and a former Tulsan, died at his home in Sedan, Kansas, June 6 of a heart attack. He formerly was with Prairie Oil & Gas Company, and was later employed by Sinclair Prairie Oil Company for 25 years.

»

Edward E. Simpson, Sr., 77, pioneer oil man, died in Tulsa June 4 of a heart attack. He had lived in Oklahoma since 1915, and at the time of his death was employed by Devonian Oil Company. Born in New Castle, Pa., Simpson was a superintendent for The Pure Oil Company, and later was an independent drilling contractor in Pennsylvania and Ohio. He went to Oklahoma as general superintendent of Shafer Oil & Refining Company, now Deep Rock Oil Corporation. He served five years as general manager of Oklahoma Eastern Oil Company and in 1925 joined the Devonian company.

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Be Sure **IT'S A KING** *Be Safe*

KING SWIVELS 53-GA, 32-GA AND 20-GW

Types 32-GA, 53-GA and 20-GW swivels are alike in general design, but vary somewhat in detail.

These swivels have been field proven by several years of service and have been accepted as leaders in their class. They are in service throughout most of the oil world.

There are no other swivels which are comparable on a basis of capacity in proportion to weight.

Their high capacity in relation to their lightness make them ideal for use in remote and inaccessible places.

The 53-GA is used for drilling medium depth oil wells; also used extensively on work-over rigs. It is an ideal swivel for slim hole drilling.

The 32-GA is used with large water well rigs and for drilling relatively shallow oil wells. It is also used with long strings of tubing for washing down and similar operations.

The 20-GW swivel is used for drilling shallow and medium depth wells. The 20-GW is the smaller of the three and is used on water wells, core drilling rigs and the heavier types of Geophysical Rigs. It is also suitable for handling tubing in the shallower oil fields.

THE PRINCIPAL USES OF THESE SWIVELS ARE:

1. Drilling shallow and medium depth oil wells.
2. Drilling water wells.
3. Core Drilling and Geophysical Drilling.
4. For slim hole drilling.
5. Working over oil wells.
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9. As all purpose, lightweight swivels.

All materials used in King Swivels are the best and most suitable for their purpose. Lubrication is provided and all connections are to API specifications or to the order of the customer.

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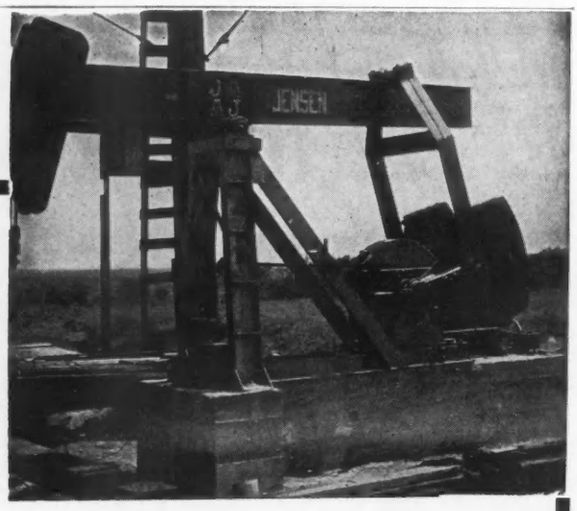
BOOK REVIEW

Job Analysis

A complete working manual on the "Technique of Job Analysis and Evaluation" in the clerical, technical and administrative fields has been issued by The Weatherhead Company. The manual is standard 8½ by 11 inches and consists of 135 pages of text. It is a complete, practical working manual of salary job evaluation.

The manual explains in detail the procedures used and is designed to enable interested companies to install the program without outside aid. It takes the mystery out of job evaluation and permits anyone with a good company background and knowledge of the jobs within an organization to analyze and evaluate the jobs of his company and arrive at a schedule of proper and equitable salaries. The textbook has been written by Charles S. Mattoon, director of industrial relations of the Weatherhead Company and nationally recognized expert on the subject. Copies can be secured without cost by management executives requesting it on company stationary by addressing The Weatherhead Company, 300 East 131st Street, Cleveland 8.



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Wax Recovery

Oil containing 17 percent commercially valuable microcrystalline wax is being recovered efficiently from tank bottom settlings, previously regarded by producers and refiners as waste, according to a recent Bureau of Mines report.

The experiments, carried on in a small plant on the outskirts of El Dorado, Kansas, were made under a cooperative agreement by the Bureau of Mines, Cities Service Oil Company, Bareco Oil Company, and the Kansas State Board of Health.

According to Ludwig Schmidt, Bureau of Mines senior petroleum engineer, Bartlesville, Okla., who was in charge of the operation, a large quantity of oil field emulsion—variously termed as "bottom settlings," "tank-bottoms," "basic sediment," and "tank-bottom emulsions"—which does not respond to ordinary demulsifying treatment, is wasted. In the Mid-Continent area these settlings have been found to contain a high concentration of paraffin (microcrystalline wax) that is valuable because of its physical structure and high melting point of 160 to 200° F. The demand for this type of paraffin is increasing, according to the report, and it has innumerable commercial uses.

The El Dorado plant utilizes material 40 to 60 percent basic sediment and salt water, containing about 4000 pounds of salt per thousand barrels of emulsion and produces a purified oil containing .05 percent basic sediment, no water and approximately 8 to 12 pounds of salt per thousand barrels and an average of 17 percent microcrystalline wax. Two methods for separating the clean oil are being used, one by still hot settling and the other by mechanical filtration.

A copy of the publication, Report of Investigations 3869 "Recovery and Utilization of Oil from Oil Field Waste Emulsion," may be obtained from the Bureau of Mines, Department of the Interior, Washington, D. C. The report was prepared by J. W. Horne, J. Wade Watkins and Arthur Matzick of the Petroleum Experiment Station, Bartlesville.

Colorado Stratigraphy

"The Stratigraphy of the Golden-Morrison Area, Jefferson County, Colorado," by L. W. LeRoy, assistant professor of geology, Colorado School of Mines, has been published in the *Quarterly*, Volume 41, Number 2 of April, 1946, according to an announcement by the Department of Publications. The paper constitutes a report on an intensive investigation conducted by the author and represents a distinctive contribution toward geology, not only to the complex area discussed, but also to Colorado. Complete in its discussion of the stratigraphy of the area from pre-Cambrian to Tertiary, the report comprises 116 pages. It includes 23 figures, 11 plates, numerous detailed sections and a bibliography. Copies of this number of the *Quarterly* may be obtained from the Department of Publications, Colorado School of Mines, Golden, Colorado, for $1.50, postage paid.

Newton Chapin Succeeds Krause As President of Lee C. Moore

Retirement of Charles R. Krause as president of Lee C. Moore & Company, Inc., Pittsburgh and Tulsa, has been announced by Newton Chapin, Sr., chairman of the board.

Krause was associated with the company since April, 1919. In 1920 he went to Tulsa from Pittsburgh as western manager and nine years later was elected president of the company with offices in Tulsa.

Chapin will assume the title and duties as president of the company with offices in Pittsburgh. Norman F. Rohrkaste was named executive vice president and H. J. Woolslayer named vice president and general manager.

Dow's Research Laboratory in Midland, Mich., Is Completed

Dow Chemical Company has occupied a new laboratory in Midland, Mich., established for the comprehensive study of the problem of the corrosion of metals. Emphasis will be on the study and development of magnesium for cathodic protection in industrial corrosion problems and protection of pipe lines, telephone and telegraph cable sheathing, sheet steel piling, underground storage, oil storage and water tanks, condensers, heat exchangers, water heaters, and other equipment.

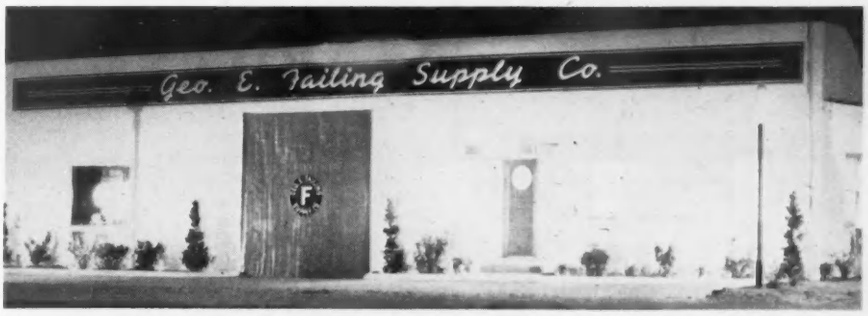
The laboratory is under the supervision of Harold A. Robinson, who has done similar research work on electromotive and corrosion problems in Dow's physical research laboratory for the past 15 years. H. A. Humble is in charge of laboratory research. He was associated with the Ethyl-Dow plant in Wilmington, N. C., and with the Kure Beach cooperative Marine-corrosion testing station. Elmer Kirk, former chief engineer of Dow Magnesium Corporation in Marysville, Mich., is responsible for engineering costs and cost analysis. John Hodge of the chemical engineering laboratory at the Dow Midland plant will head the experimental field work.

New TESCO Facilities Available To Gulf Coast Manufacturers

Texas Electric Steel Casting Company's heat treating and stress relieving facilities, utilized by the company in production of heavy equipment for the armed forces, are being made available to manufacturers in the Texas Gulf Coast area, and will give 24-hour service for fabricators of heavy equipment.

The new TESCO heat-treating department covers more than 15,000 square feet of space, nearly doubling the facilities for Gulf Coast manufacturers. Along one wall are 11 recirculating vertical type hardening and draw furnaces. A liquid quench tank is located in the middle of the bank of vertical furnaces. Three gas-fired car-type furnaces are provided for larger pieces. The department is so arranged that a truck can drive up to the car-type furnace and unload equipment. A railroad siding adjoins the plant. The company has specialized for nearly 20 years in making steel castings for the oil industry.

Failing Supply Firm Opens Midland Store



The Geo. E. Failing Supply Company, Enid, Oklahoma, has opened a store in Midland, Texas. The company purchased a building and had it completely remodeled. The store will serve West Texas, New Mexico and points farther west. Manager of the store is Russell Cowherd; Jimmy Helton is field man, and Bert R. Fisher is in charge of service.

Organization of Halbert Company In Fort Worth Is Announced

W. E. Halbert of Fort Worth announces organization of The Halbert Company devoted to the manufacture and sale of the Halbert Gas Lift and allied equipment.

Bruce N. Spencer, Jr.

Associated with Halbert in the new organization are C. B. Trent of Fort Worth and Bruce N. Spencer, Jr., of Dallas, as secretary-treasurer and sales manager, respectively. Halbert is president of the new company.

Trent has had extensive experience in machine production and has also been in the refrigeration business for some time. Spencer, recently released from the army, is a Texas A. & M. graduate and before the war was with The Atlantic Refining Company as production engineer in both the West Texas and East Texas oil fields.

The Production Engineering Service, 801 Mellie Esperson Building, Houston, has been appointed Gulf Coast distributor of the Halbert line of products.

Veteran Employes Are Honored At Raybestos-Manhattan Dinner

A second annual dinner was held for veteran employes of Manhattan Rubber Division, Raybestos-Manhattan, Inc., at Mountainview, N. J., at which three 50-year pioneers were honored, fourteen 25-year employes were introduced as the 1946 Class of Pioneers, and gold service pins were presented to some 300 Manhattan Pioneers.

Charles T. Young, former factory manager; Andrew J. Gibson and John Dotterweich, plant employes; F. L. Curtis, vice president of Raybestos-Manhattan, Inc.; Charles H. Kuhn, New York branch salesman; C. E. Cummings, assistant secretary of Raybestos-Manhattan; and Andrew N. Van Riper and Morris G. Fitts, who were honored as 50-year employes at the first Pioneer Dinner in 1945, were presented with gold Pioneer pins bearing five diamonds by J. F. D. Rohrbach, executive vice president and treasurer.

Bethlehem Supply Company Opens Louisiana and Oklahoma Stores

Two more Bethlehem Supply Company stores have been opened in Shreveport, La., and Lindsay, Okla. The Shreveport store is headed by D. G. Silvey, store manager and field representative, with M. W. Bass serving as special representative; F. E. Bennett, field representative; D. L. Wellons, field representative, and G. H. Huffhines, engineering representative. The Lindsay personnel is made up of M. L. Gilbert, manager, with C. E. Ridley and P. H. Howard as floormen. This store is under supervision of W. T. Davis, district manager, Oklahoma City.

Link-Belt Offices Opened at Moline, Birmingham, Cincinnati

Link-Belt Company, Chicago, has opened sales offices at Moline, Ill., Cincinnati, Ohio, and Birmingham, Ala.

M. J. Parykaza is in charge at Moline. He joined Link-Belt in 1922 as an engineer in the Pershing Road plant, Chicago, and has been serving customers out of Chicago since 1944. The Cincinnati office is supervised by L. R. Clark, who has been with the company since 1927. He has served Cincinnati customers out of the Dodge plant at Indianapolis. The new office at Birmingham is under direction of C. C. Wiley. Wiley has been with the company since 1926 and for the past 17 years has been a part of the sales organization at Pittsburgh.

Failing Employes Lauded

Officials and employes of Geo. E. Failing Supply Company, Enid, Okla., and Houston and Midland, Texas, have been notified by the Treasury Department that their record in the purchase of savings bonds during the war was the most outstanding of any industrial company in Oklahoma.

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Production Declines in March, U. S. Bureau of Mines Report

March production of domestic crude averaged 4,414,000 barrels daily, a drop of 305,000 barrels from the February level which was attributed to a 278,000-barrel curtailment of output in Texas and a 29,000-barrel drop in Oklahoma, the Bureau of Mines reported last week.

Oil well completions were 1333, a gain of 98 above the same month last year, but the number of drilling rigs active at the end of March was only 3279, the smallest number in two years.

The bureau found a demand of 4,608,000 barrels, 28,000 barrels above February, which resulted in a draft of 194,000 barrels daily on domestic crude stocks. Total demand for all oils averaged 5,060,000 barrels daily.

The bureau reported a 10,000-barrel gain in crude runs to stills to an average of 4,661,000 barrels daily. Total stocks of refined products increased nearly 4.5 million barrels during the month, but stocks of finished gasoline were reduced 1.1 million barrels and those of residual fuel oil 1 million barrels, while inventories of distillate fuel oil increased 4.4 million barrels and kerosine 1.4 million barrels. Total demand for motor fuel in March was 62.2 million barrels, against 52.5 million barrels in February. The yield of gasoline from crude rose from 37.1 to 37.6 percent in the same period.

Total domestic production for the first quarter of the year was only 17 million barrels under 1945—412,332,000 barrels against 429,182,000 barrels, but total demand was down nearly 29 million barrels—472,993,000 barrels against 501,742,000 barrels.

Imports Up Slightly

For March the bureau showed total crude production of 136,835,000 against 132,129,000 barrels in February; natural gasoline production, 9,323,000 against 9,011,000 barrels, and benzol production, 240,000 barrels in each month. Imports included 6,812,000 barrels of crude against 6,787,000, and 3,353,000 barrels of refined products against 3,911,000, giving a total new supply, all oils, of 156,563,000 barrels against 152,078,000.

Total demand was 156,848,000 against 148,892,000 barrels, including exports of 2,720,000 barrels of crude against 1,997,000 and 10,334,000 barrels of refined products against 8,832,000. Domestic demand included 56,801,000 barrels of motor fuel against 47,889,000; 8,006,000 barrels of kerosine against 9,608,000; 19,804,000 barrels of distillate fuel oil against 25,341,000; 42,229,000 barrels of residual fuel oil against 39,332,000; 2,562,000 barrels of lubricating oil against 2,275,000; 209,000 barrels of wax against 181,000; 713,000 barrels of coke against 611,000; 2,507,000 barrels of asphalt against 1,864,000; 64,000 barrels of road oil against 59,000; 7,106,000 barrels of still gas against 6,254,000; 3,361,000 barrels of miscellaneous products against 3,350,000, and 432,000 barrels of losses against 1,299,000.

Price Index Drops

Stocks at the close of the month included 221,400,000 barrels of gasoline-bearing crude against 227,220,000 February 28; 4,528,000 barrels of heavy crude in California against 4,607,000; 6,658,000 barrels of natural gasoline against 5,843,000, and 231,558,000 barrels of refined products against 226,759,000; a total, all oils, of 464,144,000 barrels against 226,759,000, or 92 days' supply against 87 days.

The Bureau of Labor Statistics placed the price index for crude and petroleum in March at 61.2 against 61.6 in February and 64.3 in March, 1945. The crude capacity represented in the report was 4,902,000 barrels, indicating an operating ratio of 95 percent against 94 percent in February and 94 percent in March of last year.

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